APPENDICES

Appendix 2-1	**NOP and NOP Comments**
Appendix 3-1	**Public Review Draft General Plan**
Appendix 3-2	**Redding 2023-2045 General Plan Planning Horizon Forecast Model**
Appendix 5.3-1	**Air Quality and Greenhouse Gas Emissions Data**
Appendix 5.4-1	**Biological Resources Technical Memorandum for the City of Redding General Plan**
Appendix 5.5-1	**Cultural Resources Inventory Report**
Appendix 5.13-1	**Noise Data**
Appendix 5.15-1	**Service Providers Questionnaires**

Appendix 2-1 NOP/NOP Comments

NOTICE OF PREPARATION AND
NOTICE OF PUBLIC SCOPING MEETING

Date: May 13, 2022

To: California State Clearinghouse
Shasta County Clerk
Responsible and Trustee Agencies
Interested Parties and Organizations (List Attached)

Subject: Notice of Preparation (NOP) for the City of Redding General Plan Update 2023 Environmental Impact Report (EIR) and Notice of Public Scoping Meeting

Lead Agency: City of Redding

Contact: Lily Toy, Planning Manager

Project Title: Redding General Plan Update 2023-2045

Project Location: The City of Redding's Planning Area and Sphere of Influence are in south-central Shasta County. Adjacent to the north is the City of Shasta Lake. The City of Anderson is located approximately 10 miles south of Redding. Redding is principally bordered by unincorporated Shasta County lands. Interstate and regional access to the City is provided by Interstate 5 (I-5), which runs in a general north-south direction and bisects the City. State Route 299, an east/west facility, also bisects the city. State Route 44 begins in Redding and runs east toward Lassen Volcanic National Park. Rail freight access is provided by the Union Pacific Railroad; Amtrak provides daily passenger service north and south of Redding. Commercial air service is available at the Redding Municipal Airport. Figure 1, *Regional Location,* shows the General Plan area in its regional and local contexts.

Scoping Meeting: 4:00 PM, Tuesday, May 24, 2022

PURPOSE

In accordance with Section 15021 of the California Environmental Quality Act (CEQA) Guidelines, the City of Redding, as lead agency, will prepare an Environmental Impact Report (EIR) for the Redding General Plan Update 2023-2045. (General Plan Update). Pursuant to Section15082(a) of the CEQA Guidelines, the City of Redding (City) has issued this Notice of Preparation (NOP) to provide responsible agencies, trustee agencies, and other interested parties with information describing the General Plan Update and its potential environmental effects. The city is soliciting your comments on the scope of the environmental analysis.

Section 15082(b) of the CEQA Guidelines requires comments to be provided within 30 days of receipt of a NOP. In compliance with the time limits mandated by CEQA, the comment period for this NOP is from **Friday May 13, 2022 through Monday, June 17, 2022**. Please email your written comments to Vishnu Krishnan at (vkrishnan@cityofredding.org) or physically mail them to the Development Services Department at the City of Redding, 777 Civic Center Drive, Redding, CA 96001. Please include the name, email and/or telephone number of a contact person at your agency or organization who can answer questions about the comment.

PROJECT SUMMARY

The City of Redding's General Plan Update will provide the long-term planning blueprint for the improvements needed to house the City's growing population and needed services and industry over through 2045. The city could potentially grow from its current population of approximately 91,743 to a population of approximately 95,388, based on projections prepared for the City of Redding. The current City Limits contains adequate vacant sites zoned for housing, commercial services, and industrial uses to serve a much larger population. The new growth is focused in areas of the city where services exist or can be expanded/extended to serve additional and more intensive development where appropriate.

This development will occur in a Planning Area footprint that is smaller (approximately 24 square mile reduction) than that of the 2000-2020 General Plan. The Existing and Proposed Planning and Growth Areas are shown in Figures 2 and 3, respectively. However, as with the current General Plan's Planning Area, the Churn Creek Bottom is still included given that Redding surrounds the area on three sides, and it is influenced to some degree by City activities and planning efforts, such as the Redding Municipal Airport and access to the Stillwater Business Park.

The General Plan Diagram (aka land use map) will not be modified by the update. Existing land use classifications and configurations will remain unaffected.

The General Plan will identify long-term goals; provide a basis for decision-making; provide citizens a forum for input on their community's direction; and inform citizens, developers, decision-makers, and other cities and Shasta County of the expectations for development. The General Plan will advance the City's vision for a resilient, equitable, and healthy community with high-quality development and urban centers and corridors. The General Plan Update includes comprehensive updates to the required elements under the State Planning and Zoning Law, as well as other optional elements that the City has elected to include in its General Plan. In addition, an Environmental Justice Element is embedded throughout the General Plan Update's goals and policies. Each element includes goals and policies that are based, in part, on creating an equitable, sustainable, and livable community of neighborhoods, and provides updates based on State and local law, and other considerations. The Development Code will be updated in the future as may be necessary to reflect the policy direction and development incentives addressed in the General Plan Update, although such updates are anticipated to be minimal in scope.

Additional information regarding the General Plan Update can be found on the City's website: https://www.cityofredding.org/departments/development-services/planning/projects.

PROJECT DESCRIPTION

Overall Approach to the General Plan Update

Redding is fortunate to have considerable vacant land with existing land use designations to accommodate both residential and nonresidential growth in the coming decades. As such, projected growth over the next twenty-two years will be guided into areas of the city that have the infrastructure and other resources to accommodate it, or where the resources can be readily improved as currently planned. As proposed this project does not include changes to land use designations. This means that much of the community is expected to continue the incremental growth envisioned by the existing general plan, while additional infill and mixed-use development throughout the community will be encouraged as addressed below. Connectivity improvement of trails, paths, and roadways to and through the City's diverse neighborhoods will also be encouraged.

There are considerable opportunities to accommodate redevelopment of a number of existing commercial centers or along arterial street corridors. Reimagining these centers and corridors may result in a larger range of neighborhood and community services and/or the addition of residential uses being provided. These "Opportunity Areas" are generally depicted in Figure 4, Opportunity Areas. The General Plan will include several policies intended to incentivize private redevelopment within these areas. Such incentives may include affordable housing funds, installation of property street frontage improvements as part of the City's Active Transportation Program (ATP), use of Development Impact Fees at appropriate locations, general street and utility maintenance activities, installation of planned sewer and water line capacity improvements, reciprocal, or joint use parking allowances, and similar, yet undefined, incentives. The existing General Plan identifies a few larger Focus Areas where neighborhood-specific policies or guidelines are provided and a few of these existing Focus Areas will be eliminated with the General Plan Update. No additional Focus Areas will be identified. The Focus Areas for the 2023-2045 General Plan are depicted on Figure 5, Focus Areas. As with the General Plan Diagram, future land uses will not be dictated by land use changes in the Focus Areas, rather, the incentives noted above for Opportunity Areas will be provided as appropriate to the particular neighborhood.

Community design direction included in the General Plan will strive to ensure that all new development connects to existing paths, trails, and roadways where reasonable. Roadways are considered public realm and must be integrated into the design of the adjacent development. An important feature of all new development is that the street improvements accommodate all modes of travel by what is known as development of "Complete Streets".

Among the concepts for modifications shown in Figure 6, Circulation System, to the City's roadway are:

- Expanded use of roundabouts at appropriate locations
- Reducing arterial street right-of-way widths where analyses indicate that currently planned improvements are not warranted.
- Addressing long term street maintenance needs
- Ensuring adequate bicycle, pedestrian, bus, and similar multimodal facilities can be accommodated.
- Construction of one or more of "diverging diamond" interchanges where appropriate and supported by CalTrans.
- Addressing micro-mobility options.

The General Plan Update seeks to retain and, in some cases, create equitable benefit and access to services, such as transportation, public health and safety, housing, and recreation, while encouraging economic development that is inclusive and representative of the entire Redding population. Policies in the plan will inspire investment that promotes City identity and strengthens its commitment to being culturally and historically respectful.

ENVIRONMENTAL IMPACT REPORT

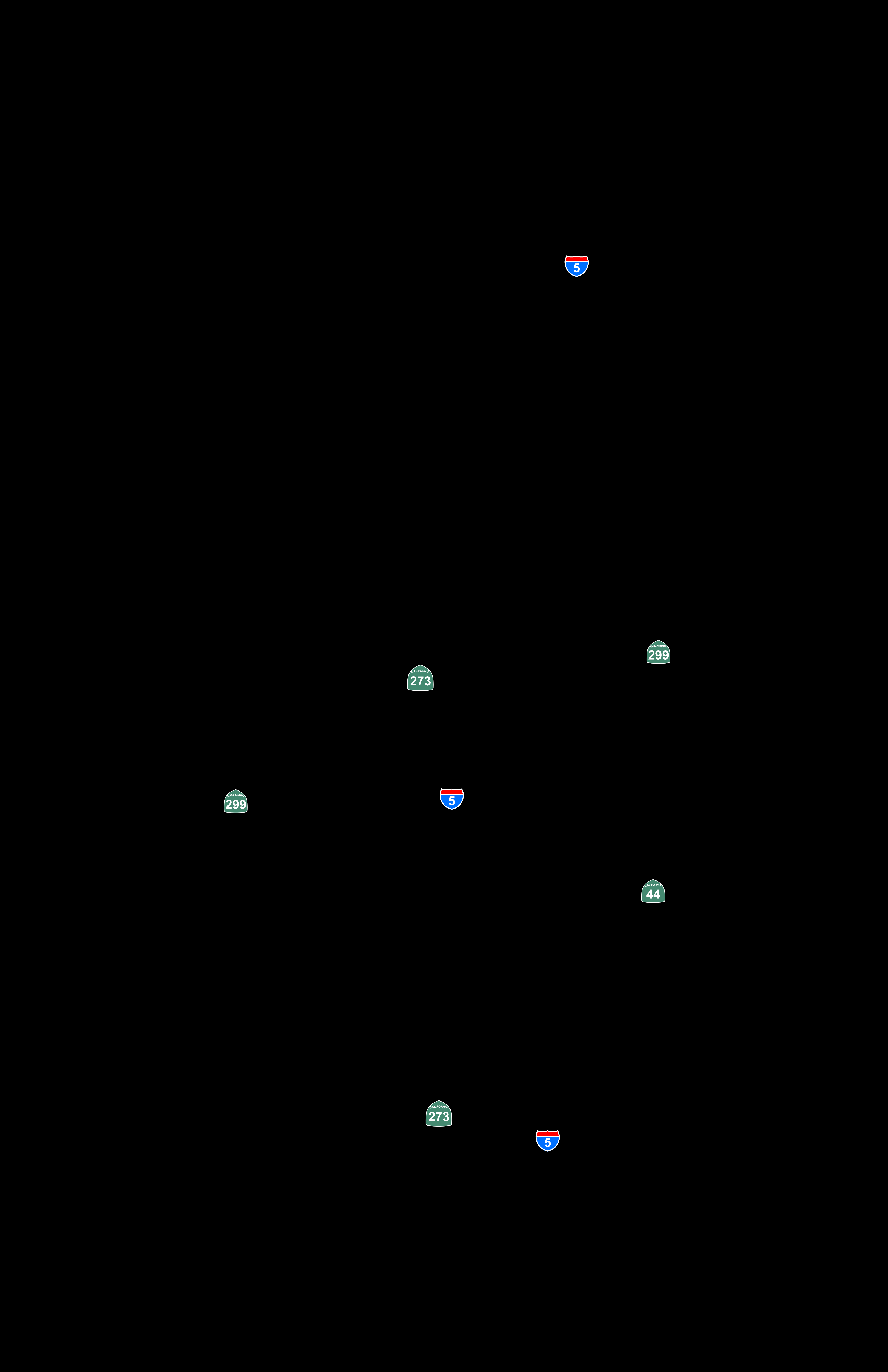
As all the CEQA topics will be included in the EIR, the City has not prepared an Initial Study for this NOP as permitted in Section 15060(d) of the CEQA Guidelines.

Probable Environmental Effects: The City has determined that the implementation of the General Plan Update may have a significant effect on the environment. The EIR will evaluate the potential for the General Plan Update to cause direct and indirect growth-inducing impacts, as well as cumulative impacts. Mitigation will be proposed for those impacts that are determined to be significant. Mitigation will be identified, and a mitigation monitoring and reporting program will be developed as required by the CEQA Guidelines (Section 15150).The EIR will evaluate the following topics:

- **Aesthetics:** The City anticipates that the implementation of the General Plan Update would have less than significant impacts on Aesthetics in thefollowing areas: scenic highways, light, and glare impacts. Although the overall effect of the General Plan Update would be to improve the aesthetic quality of the City, these efforts must be balanced with the City's ongoing need for economic development as well as the safety and security of its residents.
- **Agricultural Resources:** The EIR will address any impacts to agricultural zoning, forest land conversion, and conversion of agricultural land under Williamson Act contract.
- **Air Quality:** Construction and operation of land uses accommodated under the General Plan Update could result in air pollutant emissions. Ground disturbance during site development activities will generate dust and construction equipment will create short-term pollutant emissions. Development accommodated under the General Plan Update could result in additional vehicular traffic that would generate air pollution, exacerbated by the City's location and proximity to high-traffic corridors such as Interstate 5. The General Plan Update will incorporate policies addressing sources of air pollution.

- **Biological Resources**: The General Plan Update will include policies and action items needed to ensure compliance with applicable laws and policies. Development accommodated under the General Plan Update may have an adverse effect on rare, threatened, or endangered species and/or the habitat that supports them, which could impact potential development outcomes. In addition, such development could potentially affect existing wildlife corridors. The General Plan Update could affect riparian habitat and/or wetlands.
- **Cultural and Tribal Cultural Resources**: Development accommodated under the General Plan Update may have an adverse effect on historic, archaeological, and/or paleontological resources. There is the potential for construction-related effects on historical and archaeological resources. In addition, many areas of the City have not been surveyed for cultural resources or have surveys that are out of date.
- **Energy**: Refinements to the California Building Code (CBC) as well as national trends toward solar energy have changed the approach to new development, and the expectation of home buyers. The EIR will explain how energy is provided to the City, however it is not anticipated that energy use will be a significant impact resulting from development of the General Plan.
- **Greenhouse Gas Emissions**: The State has set targets for the reduction of greenhouse gases (GHG) that apply to both construction and operation of projects in the City. There are technological and design solutions that can reduce GHG impacts such as solar energy, and ensuring mobility options that do not rely on private vehicles thereby reducing vehicle miles travelled (VMT). The EIR will evaluate the GHG emissions associated with the proposed General Plan.
- **Hazards and Hazardous Materials**. The EIR will include a discussion of the local hazard mitigation plan as well as the updated safety element.
- **Hydrology and Water Quality**: The City has a close tie to the Sacramento River and tributaries run throughout the planning area. The EIR will include a discussion of the methods the City employs to reduce water quality impacts.
- **Land Use / Planning**. While the proposed General Plan Update does not include changes to the land use pattern, several “opportunity areas” and focus areas are included that are intended to accelerate growth in select areas. The EIR will discuss the intended changes in these areas (See Figure 4).
- **Noise**. The update to the Noise Element will include policies that may allow for noisier areas of the City, such as in entertainment districts or downtown, and quieter areas near low density residential. It is anticipated that the update to the General Plan will also require modification to the City’s noise ordinance. (Title 18.40.100 of the Redding Municipal Code)
- **Population / Housing**. The EIR will include a discussion of the anticipated growth expected during the 2023-2045 planning period of this update. Population growth will occur, and is encouraged to be within the focus areas identified in Figure 4.

- **Wildfire**: The City is in an area that is prone to wildfire. Development consistent with the General Plan will need to consider exposure of development to wildfire, as well as the need for evacuation and/or shelter from wildfire. The wildland urban interface (WUI) will be a potential impact evaluated in the EIR.
- **Transportation**: The City intends to keep level of service as a general plan policy and incorporate a reduction of vehicle miles travelled (VMT) program consistent with state requirements. The EIR will evaluate the potential road improvements associated with the LOS standard and determine if VMT will be affected by future growth.


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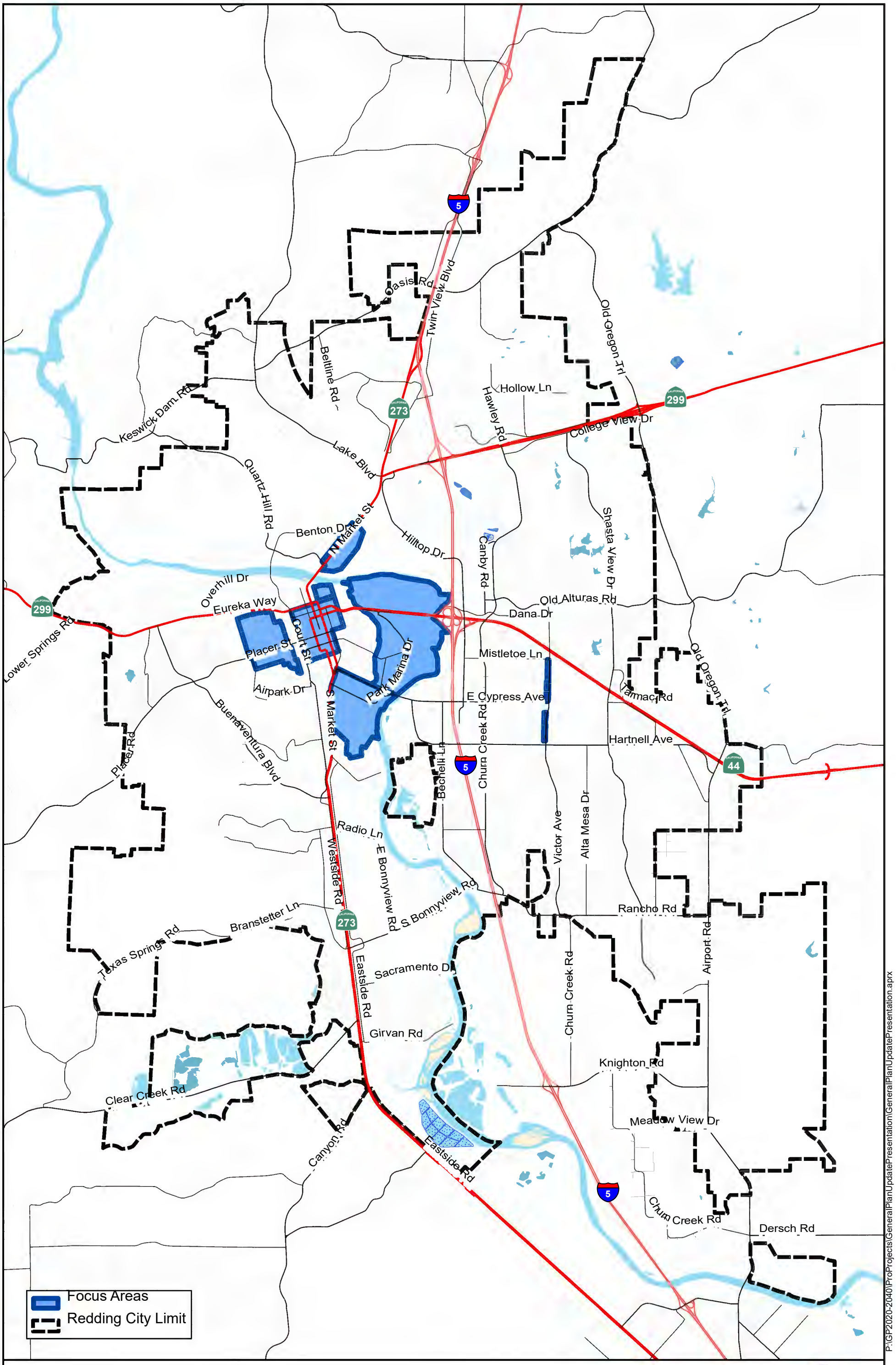
Opportunity Areas
Redding City Limit

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Figure 4
Opportunity Areas

Print Date: May 3, 2022

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Oasis Rd
Twin View Blvd
Old Oregon Trl
Beltline Rd
Hollow Ln
Hawley Rd
College View Dr
Keswick Dam Rd
Quartz Hill Rd
Lake Blvd
Benton Dr
N Market St
Hilltop Dr
Canby Rd
Shasta View Dr
Overhill Dr
Eureka Way
Old Alturas Rd
Dana Dr
Lower Springs Rd
Placer St
Court St
Park Marina Dr
Mistletoe Ln
Airpark Dr
E Cypress Ave
Tamarack Rd
Placer Rd
Buenaventura Blvd
S Market St
Bechelli Ln
Churn Creek Rd
Hartnell Ave
Radio Ln
Westside Rd
E Bonnyview Rd
S Bonnyview Rd
Victor Ave
Alta Mesa Dr
Rancho Rd
Branstetter Ln
Texas Springs Rd
Eastside Rd
Sacramento Dr
Airport Rd
Girvan Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Meadow View Dr
Churn Creek Rd
Dersch Rd
Focus Areas
Redding City Limit
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Figure 5
Focus Areas
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AGENCY	NAME	ADDRESS	CITY	STATE	ZIP
Shasta County Air Quality Management District		1855 Placer Street Suite 101	Redding	CA	96001
California Department of Fish and Wildlife		601 Locust Street	Redding	CA	96001
RWQCB		364 Knollcrest Drive Suite 205	Redding	CA	96002
Shasta County Planning Division		1855 Placer Street Suite 103	Redding	CA	96001
Shasta County Public Health Department		2650 Breslauer Way	Redding	CA	96001
Shasta County Environmental Health		1855 Placer Street Suite 201	Redding	CA	96001
Caltrans District 02 - Local Development Review MS6	Marcelino Gonzalez	1657 Riverside Drive	Redding	CA	96001-0536
California State Clearinghouse		1400 Tenth Street Room 108	Sacramento	CA	95814
California State Clearinghouse		PO Box 3044	Sacramento	CA	95812-3044
Bureau of Land Management		6640 Lockheed Drive	Redding	CA	96002
Bureau of Land Management		2800 Cottage Way, Suite W1623	Sacramento	CA	95825
Wintu Audubon Society		PO Box 994533	Redding	CA	96099
Shasta Environmental Alliance		PO Box 990027	Redding	CA	96099
Shasta Community Services District		PO Box 2520	Shasta	CA	96087
Centerville Community Services District		8930 Placer Road	Redding	CA	96001
Bella Vista Water District		11369 E Stillwater Way	Redding	CA	96003
US Bureau of Reclamation		116349 Shasta Dam Blvd	Shasta Lake	CA	96019
Shasta County Dept of Public Works		1855 Placer Street	Redding	CA	96001
City of Shasta Lake		447 Main Street	Shasta Lake	CA	96019
City of Anderson		1887 Howard Street, 2nd Floor	Anderson	CA	96007
Charter Communications		5797 Eastside Road	Redding	CA	96001
US Postal Service	Nanci Denayer	2323 Churn Creek Road	Redding	CA	96049-9998
Pacific Gas and Electric - Service Planning	Lynn Oakley	3600 Meadow View Drive	Redding	CA	96002
Enterprise Elementary School District		1155 Mistletoe Lane	Redding	CA	96002
Shasta Union School District		2200 Eureka Way	Redding	CA	96001-0337
California Native Plant Society		PO Box 990194	Redding	CA	96099
Sierra Club, Shasta Group Mother Load Chapter	Dan Chu	PO Box 491554	Redding	CA	96049-1554
Shasta County Clerk		1643 Market Street	Redding	CA	96001
AT&T	Kathy Vance	4434 Mountain Lakes Boulevard	Redding	CA	96003
Shasta Mosquito Abatement District		19200 Latona Road	Anderson	CA	96007
Western Shasta Resource Conservation District		62701 Parallel Road	Anderson	CA	96007-4833
Greenville Rancheria of Maidu Indians	Kyle Self	P.O. Box 279	Greenville	CA	95947
Nor-Rel-Muk Nation	John Hayward	P.O. Box 1967	Weaverville CA	CA	96093
Pit River Tribe of California	Natalie Forrest-Perez	36970 Park Ave	Burney	CA	96013
Quartz Valley Indian Community	Frieda Bennett	13601 Quartz Valley Road	Foprt Jones	CA	96032
Redding Rancheria	Jack Potter	2000 Redding Rancheria Road	Redding	CA	96001
Shasta Indian Nation	Sami Jo Difuntorum	P.O. Box 634	Newport	OR	97365-0045
Shasta Nation	Roy Hall	10808 Quartz Valley Road	Fort Jones	CA	96032
Winnemem Wintu Tribe	Caleen Sisk	14840 Bear Mountain Road	Redding	CA	96003
Winnemem Wintu Tribe	Mark Miyoshi	P. O. Box 774	Mount Shasta	CA	96067
Wintu Tribe of Northern California	Wade McMaster	P.O. Box 995	Shasta Lake	CA	96019
Nor-Rel-Muk Nation	Marylin Delgado	P.O. Box 1967	Weaverville CA	CA	96093
Pit River Tribe of California	Brandon Harrison	36968 Park Avenue #R	Burney	CA	96013
Pit River Tribe of California	Bill George	P.O. Box 216	Burney	CA	96013
Shasta County Office of Education		1644 Magnolia Avenue	Redding	CA	96001
Redding Elementary School District		5885 East Bonnyview Road	Redding	CA	96001
Pacheco Elementary School District		20991 Dersch Road	Anderson	CA	96007
Columbia Elementary School District		10142 Old Oregon Trail	Redding	CA	96003
Shasta College		11555 Old Oregon Trail	Redding	CA	96003

NATIVE AMERICAN HERITAGE COMMISSION



May 19, 2022

Lily Toy
City of Redding
777 Cypress Ave.
Redding, CA 96001

Re: 2022050300, Redding General Plan 2023-2045 Project, Shasta County

Dear Ms. Toy:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
Karuk

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

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COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
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Raymond C. Hitchcock
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NAHC HEADQUARTERS
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nahc@nahc.ca.gov
NAHC.ca.gov

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).

2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.

3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).

4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:

- **a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
- **b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:

- **a.** If part or all of the APE has been previously surveyed for cultural resources.
- **b.** If any known cultural resources have already been recorded on or adjacent to the APE.
- **c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
- **d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- **a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
- **b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Cameron.Vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

cc: State Clearinghouse

Governor's Office of Planning & Research

Jun 10 2022

STATE CLEARINGHOUSE

From: **OPR State Clearinghouse** State.Clearinghouse@opr.ca.gov
Subject: Fw: CHP Redding Area Response - Environmental Impact Document Review – SCH # 2022050300
Date: June 10, 2022 at 3:20 PM
To: Jillian Knox Jillian.Knox@OPR.CA.GOV

From: Alexander, Kevin@CHP <KAlexander@chp.ca.gov>
Sent: Friday, June 10, 2022 3:00 PM
To: ltoy@cityofredding.org <ltoy@cityofredding.org>
Cc: Hinkson, Timothy@CHP <THinkson@chp.ca.gov>; CHP-EIR <EIR@chp.ca.gov>; CHP-10AAdesk <10AAdesk@chp.ca.gov>; OPR State Clearinghouse <State.Clearinghouse@opr.ca.gov>; Lange, Kristen@CHP <Kristen.Lange@chp.ca.gov>
Subject: CHP Redding Area Response - Environmental Impact Document Review – SCH # 2022050300

Good afternoon Lily Toy,

The California Highway Patrol (CHP) Redding Area, has reviewed the Environmental Impact Document (SCH 2022050300) proposed by the City of Redding. The CHP Redding Area was asked to evaluate potential traffic safety and congestion issues relative to the proposed project located within the City of Redding in relation to development for increased housing.

The proposed magnitude of the project would likely place an increased demand on public safety resources with the expected increase in vehicular traffic on State Route (SR) 299, SR-44, SR-273, Interstate 5 and unincorporated county roads within Shasta County. The proposed project is located in close proximity to all the previously listed state routes and Interstate 5. These roadways are already experiencing increased congestion during peak periods of use and during special events in the City of Redding and Shasta County. This project could have a negative impact on CHP Redding Area operations due to the increased vehicle and pedestrian traffic, which will necessitate the need for additional traffic safety control measures to mitigate the potential increase in traffic congestion and collisions within our jurisdiction. The potential impact to CHP operations are as follows:

- Increased Traffic: This would potentially increase traffic congestion and calls for service. The project includes the addition of several miles of roadway which would fall under the jurisdiction of CHP Redding Area for traffic enforcement and traffic safety. This increase in workload could have a negative impact on response times to calls for service.

- Pedestrian/Bicycle Safety: With increased housing, including additional new roadways, comes the concern of increased vehicular, pedestrian, and bicycle traffic. Potential concerns include the design of roadways of sufficient size to accommodate vehicles, pedestrians, and bicyclists at concurrent times while keeping safety paramount. This could also potentially increase traffic congestion and calls for service, negatively impacting CHP Redding Area's ability to respond to calls for service in a timely manner.

- Increased Heavy Truck Traffic: The addition of housing and additional new roadways, would theoretically increase delivery of goods and services to local retailers and residential customers. A review of current truck routes and approved hazardous materials routes would need to be completed to ensure the efficient flow of goods and services on all state and local highways. Consideration should be given to ensure roadways are capable of accommodating the increased truck traffic to include the increased size and weight associated with heavy truck traffic.

- School Bus Routing: CHP Redding Area oversees school bus operations within Shasta County, and with increased housing and new roadways, school bus routes would need to be revised which would include a review of new bus stops by the CHP Redding Area. CHP Redding Area is also responsible for school bus driver testing and licensing within Shasta County. With increased residential housing, this would cause an increased workload for CHP Redding Area to review and approve school bus stops and to process and approve school bus driver applicants. Furthermore, the safety of children at all school bus stops is amongst our highest priority, and locations would need to be safe and suitable for vehicular traffic, pedestrians, bicyclists and a school bus use at concurrent times.

- Additional Enforcement Demands: Increased housing and new roadways brings more vehicles, pedestrians and bicyclists, which all use roadways within California. CHP Redding Area would have an increased workload to ensure proper traffic safety. Additionally, CHP Redding Area could incur more congestion of local roads, state highways, and state freeways. Increased congestion increases calls for service, which may increase response times as the call volume increases.

- Reduction of Jurisdiction: With the proposed housing project, the City of Redding could potentially expand its city limits thereby causing a reduction of CHP Redding Area jurisdiction on local roads.

- CHP Redding Communication Center Operations (RCC): If the City of Redding boundaries are adjusted, this would require collaboration between RCC and the Shasta Area Safety Communications Agency (ShasCom) to appropriately map, route, and assign emergency resources, calls for service, and to ensure 911 cellular phone calls and texts to 911 are routed to the correct agency.

I sincerely appreciate the ability to provide input and feedback in this matter. If you have any questions regarding the aforementioned, please contact me or Sergeant Timothy Hinkson at (530) 225-0500.

Best regards. KA

Kevin Alexander, Captain
Commander
CHP-Redding Area
(530) 225-0500
kalexander@chp.ca.gov

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Northern Region
601 Locust Street
Redding, CA 96001
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

June 17, 2022

Governor's Office of Planning & Research

Jun 17 2022

STATE CLEARINGHOUSE

Lily Toy, Planning Manager
Development Services Department
City of Redding
777 Civic Center Drive
Redding, CA 96001
ltoy@cityofredding.org

SUBJECT: Review of the Notice of Preparation for the City of Redding General Plan Update 2023 Environmental Impact Report (EIR), State Clearinghouse Number 2022050300, City of Redding, Shasta County

Dear Lily Toy:

The California Department of Fish and Wildlife (Department) has reviewed the Notice of Preparation (NOP) for the above-referenced project (Project) dated May 13, 2022. The Department appreciates this opportunity to comment on the Project, relative to impacts to biological resources.

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and their habitat. As a responsible agency, the Department administers the California Endangered Species Act and other provisions of the Fish and Game Code that conserve the State's fish and wildlife public trust resources. The Department offers the following comments and recommendations on this Project in our role as a trustee and responsible agency pursuant to the California Environmental Quality Act (CEQA), California Public Resources Code section 21000 et seq. The following are informal comments intended to assist the Lead Agency in making informed decisions early in the Project development and review process.

Project Description and Location

The Project as proposed in the NOP is to update the City of Redding's General Plan which, "*will provide the long-term planning blueprint for the improvements needed to house the City's growing population and needed services and industry over through 2045."* In addition, the General Plan Update will, "*identify long-term goals; provide a basis for decision-making; provide citizens a forum for input on their community's direction; and inform citizens, developers, decision-makers, and other cities and Shasta County of the expectations for development. The General Plan will advance the City's vision for a resilient, equitable, and healthy community with high-quality development and urban centers and corridors.*"

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The Project planning area is the City of Redding and surrounding areas within the City's sphere of influence which is in south-central Shasta County. The Project will focus new growth into areas of the city where services exist or can be expanded to serve additional development. The development will occur in a Planning Area footprint that is approximately 24 square miles smaller that what was proposed in the 2000-2020 General Plan.

Comments and Recommendations

The NOP states the implementation of the General Plan may have a significant effect on the environment including direct and indirect growth-inducing impacts as well as cumulative impacts. It further states the development accommodated under the General Plan Update may have an adverse effect on rare, threatened, or endangered species and/or the habitat supports them including impacts to wildlife movement corridors, riparian, and wetland habitats. To determine significance, the Department recommends biological surveys be conducted for these development areas and provide the analysis and rationale in the forthcoming draft Environmental Impact Report (DEIR). To enable Department staff to adequately review and comment on the proposed Project, we recommend the information attached (Attachment 1) be included in the DEIR, as applicable.

Goals and Policies

The Department reviewed the Natural Resources Element of the City of Redding's current 2000-2020 General Plan for reference. The Department supports the goals and policies of the current General Plan Natural Resource Element, and recommends the City strengthen them to provide even further protection for natural resources. The Department recommends the City of Redding utilize the General Plan Update as an opportunity to assess the effectiveness of these goals and policies.

For example, under Goal NR7 *Recognize the Aesthetic and Biological Values of Oak Woodlands and Other Natural Vegetation*, Policy NR7B states, "*Identify and establish appropriate "tree mitigation areas" to be used for the planting of native trees in concert with development project mitigation."* This Policy should propose mitigation areas be protected in perpetuity by a conservation easement. For example, the Policy could be modified as follows: "*Identify and establish appropriate "tree mitigation areas" to be used for the planting of native trees in concert with development project mitigation.* ***The 'tree mitigation areas' will be protected in perpetuity by a conservation easement."*** Adding a conservation easement to this Policy would strengthen the implementation and effectiveness of Goal NR7 to conserve oak woodlands.

The Department looks forward to reviewing the forthcoming draft Environmental Impact Report and is available for consultation should City of Redding staff have any

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questions or concerns. Please contact Amy Henderson, Senior Environmental Scientist (Specialist), at R1CEQARedding@wildlife.ca.gov for additional assistance.

Sincerely,

DocuSigned by:
Brett Kormos
189F3871E465427...

Brett Kormos, Acting Regional Manager
For Tina Bartlett, Regional Manager
Northern Region

ec: Vishnu Krishnan
vkrishnan@cityofredding.org

State Clearinghouse
state.clearinghouse@opr.ca.gov

Amy Henderson
California Department of Fish and Wildlife
R1CEQARedding@wildlife.ca.gov

Habitat Conservation Planning Branch

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Governor's Office of Planning & Research

Jun 17 2022

STATE CLEARINGHOUSE

ATTACHMENT 1
Biological Resources Assessment

1. A complete assessment of the flora and fauna within and adjacent to the Project area should be conducted, with particular emphasis upon identifying special status species including rare, threatened, and endangered species. This assessment should also address locally unique species, rare natural communities, and wetlands. The assessment area for the Project should be large enough to encompass areas potentially subject to both direct and indirect Project affects. Both the Project footprint and the assessment area (if different) should be clearly defined and mapped in the DEIR. If previous surveys have been conducted, they should be less than two years old and conducted during the appropriate blooming time for plants and when wildlife would be most active. Previous surveys should be attached to the DEIR. Botanical surveys should be conducted by a qualified botanist.

    a. The Department's California Natural Diversity Data Base (CNDDB) should be searched to obtain current information on previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12, Sections 1930-1940 of the FGC. To provide an adequate assessment of special-status species potentially occurring within the Project vicinity, the search area for CNDDB occurrences should include all United States Geological Survey (USGS) 7.5-minute topographic quadrangles with Project activities, and all adjoining 7.5-minute topographic quadrangles. The DEIR should discuss how and when the CNDDB search was conducted, including the names of each quadrangle queried, or why any areas may have been intentionally excluded from the CNDDB query. As a reminder, the Department cannot and does not portray the CNDDB as an exhaustive and comprehensive inventory of all rare species and natural communities statewide. Field verification for the presence or absence of sensitive species will always be an important obligation of its users. Likewise, your contribution of data to the CNDDB is equally important to the maintenance of the CNDDB. Whenever possible, we request that data be submitted using our online field survey form along with a map with the rare populations or stands indicated.

    b. In addition to the CNDDB, other electronic databases such as those maintained by the California Native Plant Society and U.S. Fish and Wildlife Service (USFWS) should be queried.

    c. A complete assessment of rare, threatened, and endangered invertebrate, fish, wildlife, reptile, and amphibian species should be presented in the DEIR. Rare, threatened, and endangered species to be addressed shall include all those that meet the CEQA definition (see CEQA Guidelines section 15380). Seasonal variations in use of the Project area should also be addressed. Focused species-specific

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surveys, conducted at the appropriate time of year and time of day when the species are active or otherwise identifiable, are recommended. Acceptable species-specific survey procedures should be developed in consultation with the Department and the USFWS. Links to some survey procedures are provided on the Department's website (https://www.wildlife.ca.gov/Conservation/Survey-Protocols).

d. Species of Special Concern (SSC) status applies to animals generally not listed under the federal Endangered Species Act or CESA, but which nonetheless are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist (see CEQA Guidelines section 15380 and CEQA Guidelines Appendix G (IV)(a)). SSC should be considered during the environmental review process. CEQA (California Public Resources Code sections 21000-21177) requires State agencies, local governments, and special districts to evaluate and disclose impacts from "projects" in the State. Section 15380 of the CEQA Guidelines clearly indicates that SSC should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

   Sections 15063 and 15065 of the CEQA Guidelines, which address how an impact is identified as significant, are particularly relevant to SSCs. Project-level impacts to listed (rare, threatened, or endangered species) species are generally considered significant thus requiring lead agencies to prepare an EIR to fully analyze and evaluate the impacts. In assigning "impact significance" to populations of non-listed species, analysts usually consider factors such as population-level effects, proportion of the taxon's range affected by a project, regional effects, and impacts to habitat features.

e. Fully Protected animals may not be taken or possessed at any time and the Department is not authorized to issue permits or licenses for their incidental take. Fully Protected animals should be considered during the environmental review process and all Project-related take must be avoided.

f. A thorough assessment of rare plants and rare natural communities should be conducted, following the Department's March 2018 Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities, available here: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline=1.

g. A detailed vegetation map should be prepared, preferably overlaid on an aerial photograph. The map should be of sufficient resolution to depict the locations of the Project site's major vegetation communities and show Project impacts relative to each community type. The

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Department's preferred vegetation classification system should be used to name the polygons; however, the vegetation classification ultimately used should be described in detail. Additional information for vegetation mapping can be found on the Department's website (https://wildlife.ca.gov/Data/VegCAMP). Special Status natural communities should be specifically noted on the map.

h. The DEIR should include survey methods, dates, and results, and should list all plant and animal species (with scientific names) detected within the Project study area. Special emphasis should be directed toward describing the status of rare, threatened, and endangered species in all areas potentially affected by the Project. All necessary biological surveys should be conducted in advance of the DEIR circulation and should not be deferred until after Project approval.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, should be included.

   a. The DEIR should present clear thresholds of significance to be used by the Lead Agency in its determination of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect (CEQA Guidelines section 15064.7).

   b. CEQA Guidelines, section 15125 (a-e), direct that knowledge of environmental conditions at both the local and regional levels is critical to an assessment of environmental impacts and that special emphasis shall be placed on resources that are rare or unique to the region.

   c. Additional information on biodiversity, wildlife linkages, and significant habitats can be found on the Department's Areas of Conservation Emphasis: https://wildlife.ca.gov/Data/Analysis/ACE#523731770-species-biodiversity.

   d. In evaluating the significance of the environmental effect of the Project, the Lead Agency should consider direct physical changes in the environment, which may be caused by the Project and reasonably foreseeable indirect physical changes in the environment, which may be caused by the Project. Expected impacts should be quantified (e.g., acres, linear feet, number of individuals taken, volume or rate of water extracted, etc.).

   e. Impacts associated with initial Project implementation as well as long-term operation and maintenance of the Project shall be addressed in the DEIR pursuant to CEQA Guidelines 15126.2 (a).

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f. Project impacts should be analyzed relative to their effects on off-site habitats and species. Specifically, this may include public lands, open space, downstream aquatic habitats, areas of groundwater depletion, or any other natural habitat or species that could be affected by the Project (CEQA Guidelines Appendix G (IV and IX).

g. Impacts to, and maintenance of wildlife corridor/movement areas and other key seasonal use areas should be fully evaluated and provided (CEQA Guidelines Appendix G (IV), FGC section 1930, and https://www.wildlife.ca.gov/Conservation/Planning/Connectivity).

h. A discussion of impacts, including but not limited to the following, should be included in the DEIR: increased lighting, nighttime operations, noise, human activity, changes in drainage patterns, changes in water volume, velocity, quantity and quality, soil erosion, and/or sedimentation in streams and watercourses.

   The Department recognizes the effects of artificial lighting on birds and other nocturnal species. The effects are numerous and include impacts to singing and foraging behavior, reproductive behavior, navigation, and altered migration patterns. To minimize adverse effects of artificial light on wildlife, the Department recommends that lighting fixtures associated with the Project be downward facing, fully-shielded and designed and installed to minimize photo-pollution.

i. A cumulative effects analysis must be developed for species and habitats potentially affected by the Project as described under CEQA Guidelines section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts to species and habitats.

3. A range of Project alternatives must be analyzed to ensure that the full spectrum of alternatives to the proposed Project are fully considered and evaluated. Alternatives, which avoid or otherwise minimize impacts to sensitive biological resources must be identified.

   a. If the Project will result in any impacts described under the Mandatory Findings of Significance (CEQA Guidelines section 15065) the impacts must be analyzed in depth in the DEIR, and the Lead Agency is required to make detailed findings on the feasibility of alternatives or mitigation measures to substantially lessen or avoid the significant effects on the environment. When mitigation measures or Project changes are found to be feasible, such measures should be incorporated into the Project to lessen or avoid significant effects.

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4. Mitigation measures for adverse Project-related impacts to sensitive plants, animals, and habitats should be developed and thoroughly discussed. Mitigation measures should first emphasize avoidance and reduction of Project impacts. For unavoidable impacts, the feasibility of on-site habitat restoration or enhancement should be discussed. If on-site mitigation is not feasible, off-site mitigation through habitat creation, enhancement, acquisition, and preservation in perpetuity should be addressed.

    a. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for most impacts to rare, threatened, or endangered species. Studies have shown that these efforts are experimental in nature and largely unsuccessful. If considered, these types of mitigation measures must be discussed with the Department prior to release of the DEIR.

    b. Areas reserved as mitigation for Project impacts must be legally protected from future direct and indirect development impacts. Potential issues to be considered include public access, conservation easements, species monitoring and management programs, water pollution, and fire management.

    c. Plans for restoration and revegetation should be prepared by persons with expertise in northern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used, container sizes, and/or seeding rates; (c) a schematic depicting the mitigation area; (d) planting/seeding schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for long-term conservation of the mitigation site.

5. Please include fuel modification impacts on vegetation in the biological resources section of the DEIR. All impacts, including future maintenance, should be quantified and described.

6. Take of species of plants or animals listed as endangered or threatened under CESA is unlawful unless authorized by the Department. However, a CESA 2081(b) Incidental Take Permit (ITP) may authorize incidental take during Project construction or over the life of the Project. The DEIR must state whether the Project could result in any amount of incidental take of any CESA-listed species. Early consultation for incidental take permitting is encouraged, as significant modification to the Project's description and/or mitigation measures may be required in order to obtain a CESA Permit. Information on

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how to obtain an ITP is available through the Department's website at: https://www.wildlife.ca.gov/Conservation/CESA/Incidental-Take-Permits.

The Department's issuance of a CESA Permit for a project that is subject to CEQA will require CEQA compliance actions by the Department as a Responsible Agency. The Department as a Responsible Agency under CEQA will consider the Lead Agency's EIR for the Project. The Department may require additional mitigation measures for the issuance of a CESA Permit unless the Project CEQA document addresses all Project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a CESA Permit.

7. The Department has responsibility for wetland and riparian habitats. It is the policy of the Department to strongly discourage development in wetlands or conversion of wetlands to uplands. We oppose any development or conversion, which would result in a reduction of wetland acreage or wetland habitat values, unless, at a minimum, Project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. The DEIR should demonstrate that the Project will not result in a net loss of wetland habitat values or acreage. All wetland delineations conducted for this Project should be attached to the DEIR.

    a. The Project location has the potential to support aquatic, riparian, or wetland habitat. A delineation of lakes, streams, and associated riparian habitats potentially affected by the Project should be provided for agency and public review. This report should include a preliminary jurisdictional delineation including wetlands identification pursuant to the USFWS wetland definition as adopted by the Department. Please note that some wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers. The jurisdictional delineation should also include mapping of ephemeral, intermittent, and perennial stream courses potentially impacted by the Project. The Department considers impacts to any wetlands (as defined by the Department) as potentially significant.

    b. The Department's issuance of a LSA Agreement for the project will require CEQA compliance actions by the Department as a Responsible Agency. The Department as a Responsible Agency under CEQA may consider the local jurisdiction's (Lead Agency) Environmental Impact Report for the Project. To minimize additional requirements by the Department pursuant to FGC section 1600 et seq. and/or under CEQA, the document should fully identify the potential impacts to the lake, stream or riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments for issuance of the agreement.

RECEIVED
JUN 30 2022
DEVELOPMENT SERVICES DEPT

DIRECTORS
TED BAMBINO BOB NASH
JIM SMITH GUY WALTERS
FRANK SCHABARUM

DAVID J. COXEY
Secretary/Treasurer/General Manager

BELLA VISTA WATER DISTRICT

11368 E. STILLWATER WAY • REDDING, CALIFORNIA 96003-9510
TELEPHONE (530) 241-1085 • FAX (530) 241-8354

June 28, 2022

Lily Toy
Planning Manager
Department of Development Services
City of Redding
P.O. Box 496071
Redding, CA 96049-6071

Re: General Plan Update

Dear Ms. Toy:

The General Plan Update anticipates the development of commercial and residential uses within the service area of Bella Vista Water District ("District"). New residential growth is focused on areas in the City where services exist or can be expanded/extended. An example of one such area (as shown on Figure 2 attached to the Notice of the Scoping Meeting) is an area along Deschutes Road and Highway 299. Missing from the Notice and not discussed at the Scoping Meeting is the issue of water supply.

The District is presently suffering a severe water shortage. The District normally relies on water allocated by the Bureau of Reclamation from the Central Valley Project. This year no water was allocated to the District. Any potential development within the District must consider a source of water other than just the District's Central Valley Project Contract to be assured of water service. Because the development is within the District's service area, does not mean the District has water available.

The District is attempting to find a solution to this problem but has not yet resolved the matter. It may be that water supply, being such an obvious concern, is already intended to be addressed. In that case, please let this letter serve as an expression of the District's concern with the issue of water supply.

If you have questions or wish to discuss this matter, please do not hesitate to contact me.

Sincerely,

David J. Coxey

David J. Coxey
General Manager

Cc: Joshua Watkins, Water Utility Manager
Ryan Bailey, Assistant Director of Public Works-Utilities

We are an equal opportunity employer and provider.

Appendices

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Appendix 3-1 Public Review Draft General Plan

CITY OF REDDING
GENERAL PLAN



Draft

Note to Reviewer

This document is the Public Review Draft of the 2023-2045 Redding General Plan. Because the City anticipates that there will be amendments made as a result of the public review process, the format has been kept simple to allow the document to be more easily modified to produce a final General Plan. As a result, you will find figures and maps located at end of each Element/chapter. Additionally, the draft does not contain photographs and other graphics that will be included in the final document. Note that since the required Housing Element is updated on a schedule established by state law and remains in effect until 2028, it is not part of this update effort.

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Acknowledgments

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Context and Regional Setting

The City of Redding is located in Shasta County in Northern California. It is approximately 100 miles south of the Oregon border and 160 miles north of Sacramento. The City's 2022 population was approximately 93,609 (U.S Census Bureau), making it the largest city in Shasta County and the second-largest city in California north of Sacramento. Redding also serves as the County seat of Shasta County.

Redding is situated at the far north end of the Sacramento Valley at the point where the valley meets the foothills of the Cascade mountain range. Redding is surrounded by mountains to the west, north, and east. The most distinctive geographical feature in the area is the Sacramento River, which flows through the City in a general north-south direction. Nine tributary streams also run through the Planning Area, generally from the west and east. Some have carved gullies and ravines with depths of up to 200 feet, mainly in the western part of the Planning Area.

Redding is bisected by Interstate 5, a major north-south highway that runs from Canada to Mexico. Interstate 5 connects Redding with major metropolitan areas such as Seattle, Portland, Sacramento, and Los Angeles. State Highways 299, 273, and 44 also pass through Redding, connecting the City with the Pacific Coast and Nevada. The main north-south line of the Union Pacific Railroad runs through the community as well. Redding's location also places it near many outdoor attractions and recreational areas such as Lassen Volcanic National Park, and the Whiskeytown-Shasta-Trinity National Recreation Area.

Redding was founded in 1872 and incorporated in 1887 at the northern terminus of the California and Oregon Railroad. The City's early growth was stimulated by the railroad and by the move of the county seat from Shasta in 1884. Mining played a major role in the economic life of Redding around the turn of the century, but it declined as the twentieth century progressed. In 1938, the beginning of construction of Shasta Dam provided another stimulus to growth in Redding. The construction boom after World War II boosted the lumber industry, which became the mainstay of Redding's economy. In recent years, retail trade, construction, government, healthcare, and tourism have become more significant with the waning of the lumber industry.

Purpose and Nature of the General Plan

The City of Redding is embarking on an important endeavor to update its General Plan, a comprehensive document that outlines the long-term vision and policies for the City's growth and development. This General Plan Update reflects the City's commitment to ensuring a prosperous, sustainable, and livable future for its residents and businesses. Moreover, the recent development in Downtown has restored the area to its role as the heart of the City. It is pedestrian- and bicycle-friendly, offering a mix of historic and contemporary structures and streets with a vibrant setting where people can dine, shop, and be entertained.

The natural setting of Redding has a profound impact on the physical and mental well-being of its residents. The abundance of outdoor recreational opportunities has encouraged an active and

healthier lifestyle. Redding has become a haven for outdoor enthusiasts, offering a wide range of activities that cater to various interests and skill levels. The natural setting also plays a significant role in the local economy, attracting a steady stream of tourists and visitors seeking to explore the area. This influx of tourism has created job opportunities in various sectors, including hospitality, outdoor recreation, and ecotourism. The economic benefits derived from the natural setting have contributed to the growth and development of the City, providing residents with a thriving local economy, and attracting diverse businesses into the City.

Redding values its unique setting along the Sacramento River. The River corridor and its numerous tributaries are preserved in a natural state, safeguarding riparian and other habitat environments, and providing opportunities for passive recreation.

The City manages the costs of roads, police protection, and other public service expenses, while continuing to provide a high level of services by focusing on infill growth rather than expanding outward.

The General Plan Update is built upon the premise that growth and development are desirable, but numerous policies are provided that will help preserve the sense of community by minimizing negative impacts. Engaging with the community and incorporating diverse perspectives are vital for a successful and representative plan that meets the needs and aspirations of Redding's residents. Recognizing the significance of community engagement and public outreach in shaping the General Plan Update, the City of Redding has dedicated significant efforts to ensure broad participation and inclusive decision-making processes.

Guiding Principles

The General Plan reflects the values of the community linking the goals, policies, and implementation measures of the Plan. To be embraced and result in positive changes over time to the community, the General Plan and its administration must be fair, just and, equitable in its interactions. To ensure the aforementioned principles, this General Plan reflects the following:

- Recognizes and embraces the City's rich and diverse history related to indigenous people who historically lived on the lands where Redding was founded and on which it thrives today.

- Accommodates growth while enhancing cultural amenities and quality of life by respecting the historical and/or architectural significance of various structures and properties in Redding.

- Preserves key features of Redding's history, open space, and the City's unique physical setting.

- Conserves the natural environment and protects environmentally sensitive areas.

- Works to ensure that equitable approaches and outcomes are considered and fostered in all future land use and policy decisions.

- Encourages development of new high-quality neighborhoods rather than generic subdivisions.

- Works to develop neighborhoods that provide all residents with the opportunity to lead fulfilling, meaningful, and healthier lives. Ensures public lives and public spaces reflect the past, present, the future of Redding's residents.

- Promotes quality building that enhances community identity and complements neighborhood character.

- Provides for diverse and affordable housing.

- Works to ensure that community planning and related activities of the City are transparent and engage the entire community regardless of economic, linguistic, or other barriers that may exist.

- Pursues a diverse and stable economy that creates ample employment opportunities for all residents.

- Strives to ensure that investment in public services, facilities, and utilities is efficient and cost effective.

- Provides a safe and healthy environment for all residents.

Legal Requirements

Under State law, all cities and counties must prepare a general plan. The general plan is a legal document that serves as the "constitution" for a community's land use and development activities. California Government Code Section 65300 requires that the general plan be a comprehensive, long-term document for the physical development of the City. It is intended that the plan be specific rather than vague. The plan may cover any land outside the City's boundaries which, in the judgment of the planning agency, bears relation to the City's planning. This area is typically referred to as the Planning Area. The existing City limits and Redding's 92-square-mile Planning Area are depicted on Figure 1-1 of the Community Development and Design Element. Consistent with the Guiding Principles of this General Plan to contain public service costs and preserve the natural environment, the Planning Area has been significantly reduced from the 116 square mile area contained in 2000-2020 General Plan.

There are eight mandatory topical elements of a general plan. These include:

- *Land Use.* Designates the general distribution and intensity of all uses of land in the community.

- *Circulation.* Identifies the general location and extent of existing and proposed major transportation facilities and other infrastructure.

- *Housing.* Assesses current and projected housing needs and presents policies and programs for providing adequate housing for all segments of the community and all economic groups.

- *Conservation.* Addresses the conservation, development, and use of natural resources, including water, forests, soils, rivers, and mineral deposits.

- *Open Space.* Details plans and measures for preserving open space for natural resources, the managed production of resources, outdoor recreation, and public health and safety.

- *Noise.* Identifies and appraises noise problems and includes policies to protect the community from the harmful effects of noise.

- *Safety.* Establishes policies and programs to protect the community from risks associated with seismic, geologic, flood, and fire hazards.

- *Environmental Justice:* Establishes policies to reduce the unique or compounded health risks in disadvantaged communities, to promote civic engagement in the public decision-making process, and to prioritize improvements and programs that address the needs of disadvantaged communities.

In addition, Government Code Section 65303 authorizes inclusion of other elements in the general plan which, in the judgment of the local legislative body, relate to the physical development of the City. The General Plan of the City of Redding includes three such optional elements: Public Facilities and Services; Parks, Trails, and Recreation; and Economic Development. All elements of the general plan, whether mandatory or optional, have equal legal status. The elements may be renamed, combined, or otherwise formatted as deemed appropriate by local jurisdictions as long as the various requirements of California Government Code Section 65300 are met.

Maps and Diagrams

The City's General Plan Diagram (Diagram) is an integral part of the General Plan. The Diagram, which is similar to a map, graphically expresses the Plan's development policies by showing the desired arrangement and location of land uses. The Diagram is required to be consistent with the General Plan text under California Government Code Section 65300.5. To be useful to City officials, staff, and the public, the General Plan Diagram must allow the various users of the Plan to reach the same general conclusion about the appropriate use of any property covered by the Plan. Redding uses a site-specific General Plan Diagram. While less precise than a map that typically follows property lines in demarcating land use boundaries, this Diagram designates the one or more land uses permitted on each property covered by the Plan. The diagram and text together specify the range of dwelling units per net acre of land for each property planned for residences, and the types of uses appropriate for all other proposed development. Other pertinent features of the General Plan Diagram include the locations of existing and proposed parks, public schools, and other public and institutional services.

As noted above, general plans also must contain a Circulation Element (aka Transportation Element). This Element shows the location and extent of existing and proposed thoroughfares, transportation routes, and other local public utilities and facilities, and correlates them with the Land Use Element. Maps are needed to show the location of these facilities. Redding's General Plan Circulation Maps show current and proposed arterials, collector streets, and other roadways as well as bikeways and rail lines. The roadway system has been tested against the planned level of development proposed in this Plan through the year 2045 and has been found to be adequate. There is more discussion of the relationship between Land Use and Circulation in the Transportation Element.

Together, the General Plan Diagram and Circulation Maps establish the backbone for future development and graphically depict how growth will be directed for the next 25 years and beyond. The General Plan contains other maps and diagrams that show various features of Redding and help illustrate the *Policies* and *Implementation Actions* of the General Plan.

Major Assumptions of the General Plan

The General Plan relies on several assumptions regarding existing and anticipated conditions within Redding's growth area, otherwise known as the Planning Area. They are:

- Based on the assumptions of the Shasta Regional Transportation Agency's ShastaSimm traffic model, Redding will gain approximately 17,728 residents by 2045. Growth in the adjacent Sphere of Influence (SOI) boundary is estimated to be approximately 17,000 residents. That computer model is used in the General Plan's Environmental Impact Report (EIR) to address a number of impacts associated with growth (e.g. "vehicle miles traveled," air quality, and greenhouse gas impacts.) The actual growth rate is likely to be less than projected by the ShastaSimm model. For instance, the City's Water Utility in its 2020 Urban Water management Plan assumes a 2045 Redding population of 109,217, approximately 2,350 fewer residents than projected by the traffic model. These differences over a 20-year planning horizon are insignificant. It should be noted that Redding's land supply is more than sufficient to accommodate even this higher-than-anticipated growth projection.

- Outward expansion of the City will be minimized to help maintain efficient and cost-effective services.

- Minimizing outward expansion, encouraging infill development, and providing incentives for infill and mixed-use projects will have positive impacts on the area's air quality over the long run.

- The average household population will remain stable at approximately 2.41 persons per household.

- To accommodate growth, the City may need as many as 7,350 additional housing units by the year 2045 as projected by the Shasta SIMM model.

- Redding will aggressively protect and enhance its position as the regional hub for the industrial, retail, and service industries.

- Not all of the items called for in this Plan (e.g., retrofitting streets, development of community parks, trail system construction, etc.) will necessarily be completed in the time frame of this Plan. The express intent is to set in motion planning for and construction of these facilities as funds become available.

Strategic Actions of the General Plan

Of the many actions called for in this Plan, several rise above others with respect to their potential impact on community development. The objectives listed below represent those areas in which the City should focus its main effort through the first five to ten years of the planning period. By focusing on a relatively discrete set of objectives, the citizens of Redding can realize benefits far in excess of what would occur if the resources were spread more thinly. These objectives should be reviewed yearly, progress monitored, and attainment strategies modified as necessary.

1. Continue community/neighborhood planning efforts that will put in place actions geared to the development and redevelopment of key neighborhoods and districts. The initial planning efforts will concentrate on the following areas although the availability of grants and other resources may allow additional efforts:

    - Downtown Core.

    - Riverfront Focus Area.

    - Opportunity Areas depicted in this General Plan.

2. Increase efforts to attract new industries and talent to the area and retain existing high-paying jobs and workforce. Actions will include:

    - Attracting, enhancing, and retaining businesses, and talent; promoting digital economic opportunities and being receptive to next-generation technologies.

    - Enhancing partnerships with other government units, non-profits, and community organizations geared towards providing opportunities, experience, education, and career training to the workforce.

    - Leveraging community strengths to enhance the economic opportunities of tourism and investing in the success of the Redding Regional Airport.

3. Contribute to the quality of life of Redding's citizens by investing in cultural, recreational, and open-space projects, including:

    - Providing additional parks, trails, bicycle facilities, and open space throughout the

community.

- Envisioning future uses for and the design of South City Park.

4. Focus development efforts on building neighborhoods, rather than just approving subdivisions. Neighborhoods are created when:

   - Activities and facilities used on a frequent basis, such as stores and parks, function as a unit and are easily accessible to residents.

   - A sense of place is created through such things as uniform tree planting, or utilizing unique signage, lighting, or other features.

   - A park, school, open space, or other public gathering place serves as the focal point of the neighborhood.

   - Nonmotorized connections from neighborhoods to employment and service centers and recreation areas are provided where feasible.

5. Ensure that public and private development is:

   - Well-designed.

   - Functional.

   - Complementary to surrounding buildings and lands.

   - Contributes its fair share to providing necessary infrastructure and services that the citizens of Redding have come to expect.

6. Continue to ensure that necessary infrastructure is planned, funded, and constructed so as to maintain the standards expected by the community.

7. Continue the efforts to develop a system of "complete streets" which recognizes that street infrastructure should be designed to accommodate nonmotorized transportation modes in addition to vehicles.

The Planning Strategy

The following section identifies those strategies that will take planning in Redding in new directions to meet the challenges of growth.

Urban Area

The land use policies continue to reinforce community desire to direct growth inward, rather than perpetuate outward expansion. This will allow the City to better contain public service costs and

maintain service levels by taking advantage of existing infrastructure wherever feasible. For instance, focusing growth within the existing urban area will result in fewer miles of roads and utilities to construct and maintain. It will reduce the need for the construction, operation, and maintenance of new fire stations and will keep the service area for police services, solid waste collection, and similar services at a more manageable and efficient size.

The General Plan Diagram, together with the established the Primary and Secondary Growth Areas, reflects this approach by indicating those areas outside the 2023 City limits where future urbanization would be appropriate; however, policies are included in the Plan that will discourage annexation until additional land is needed for development.

It is estimated that there is more than a 20-year supply of land available for urban, single-family, and multiple family development within the City limits of Redding. Single-family land is an excellent barometer of land needs because it is the largest consumer of land, accounting for about 60 percent of all developed land. Further, single-family housing will continue to be the favored housing choice of the real estate market for the foreseeable future. However, it is also important to monitor land absorption on a regular basis to ensure that enough land is available to moderate land costs, hence, housing affordability. This Plan provides flexibility for the future by designating areas for urban expansion to accommodate future housing needs.

Retail Commercial Growth

Since the passage of Proposition 13 in 1978, municipalities have increasingly come to rely on revenue from sales taxes to pay for police, fire, planning, and other public services. Redding is no exception. The City has a unique advantage since it is the regional hub for retail and service activities. However, this advantage does not come without costs. Since the late 1980s strong growth in "big box" retailing occurred, a phenomenon that is not unique to Redding. This retail strategy has changed the basic structure of the physical retail environment, with "super stores" becoming more prominent. The City realizes that it must be prepared for the increasing challenges that this brings, from a community-development perspective as well as the potential impact on existing businesses. While this retail model is still important, retail customers have been gravitating to online shopping. The full implications of this trend on Redding's retail environment were unknown at the time this General Plan was prepared.

The commercial land use classifications of this Plan have been developed to provide more certainty about the type and scale of commercial activities that can occur on given sites. For instance, rather than a generic "retail" classification, retail activities are broken down by type, based on anticipated size and intensity of use. This strategy provides certainty as to the scale and type of commercial uses that are appropriate at given locations. For instance, the descriptions of the "Neighborhood Commercial" and "Shopping Center" classifications would preclude development of "big box" stores that depend on the regional trade area.

Creating Cohesive Neighborhoods

The Plan encourages and promotes the development of new neighborhood types that are not of the homogeneous variety that have been constructed over the past several decades. These new

neighborhoods may include a mix of commercial and residential uses designed around a public space and served by transit, thereby helping reduce dependence on the automobile. The Plan provides flexibility and incentives to encourage these "Mixed-Use Neighborhoods." Numerous other policies also address designing neighborhoods to make them more livable.

Promoting Well-Designed Public and Private Developments

The design of buildings, streets, and public facilities can have long-lasting impacts on the livability of a community. Good design can:

- Improve the quality of physical changes.
- Protect and increase the value of investment.
- Protect and enhance the existing character of an area.
- Discourage incompatible new construction.

It is clear that design considerations also have limitations. They should not regulate or otherwise restrict growth, nor should they be seen as guaranteeing good design. A community must decide what level, if any, of design influence it wants to make. That effort is appropriately addressed in the City's development standards and guidelines.

This Plan recognizes the importance of basic design principles by focusing predominantly on issues of form and function. For instance, the policies of the Community Development and Design Element:

- Guide what new major streets should look like.
- Emphasize that taller buildings in certain locations can call attention to and help define an area.
- Encourage the undergrounding of existing overhead electric utilities.
- Provide generous creek and river corridors and ensure appropriate public views and access to these areas.
- Address linking residential neighborhoods to commercial areas, parks, schools, transit, and other destination points through construction of bike and pedestrian trails.
- Emphasize the importance of appropriate relationships between uses and individual buildings.

Downtown Revitalization

Continuing efforts to reclaim Downtown as the heart and cultural center of Redding is of

paramount importance. This Plan, in concert with the Downtown Redding Specific Plan, lays the foundation for the transformation of Redding Downtown through a number of policies geared to enhancing the pedestrian orientation, encouraging residential development, and investing in specific planning actions. These broad policies are found in the Downtown Focus Area section of the Community Development and Design Element.

Compatibility with the Natural Environment

The open feel of the City has been made possible by past General Plan efforts that have striven to protect the Sacramento River and its tributaries, the open hillsides, and the surrounding foothills and mountains. These play an extremely important role in how residents and visitors view Redding. Similarly, this General Plan seeks to strike a balance between the man-made environment and the importance placed on the natural setting. The Plan calls for numerous measures such as creek-corridor protection, sensitive hillside development, habitat protection, and protection of prominent ridge lines that provide a backdrop to the City.

As a package, new development should accomplish the following:

- Further the achievement of a more compact urban form.
- Occur only with availability of essential services.
- Be compatible with the site's natural topography and setting.
- Protect limited environmental resources.
- Enhance the community's image.
- Preserve existing neighborhood character.
- Assist in the development of transportation alternatives.
- Be distinctive, of high quality, and contribute to the positive image of the city.
- Improve pedestrian convenience and safety.
- Be reflective of the neighborhood/district in which it is located.
- Contain aesthetically pleasing, multiuse streets.

Economic Development

Creating a well-balanced economy is key to realizing the vast potential of the Redding area. With the decline of resource-based jobs over the past two decades, people in Redding now rely more on the service, retail, and recreation industries for jobs. Often, wages in the retail services and recreation industries are below the State average, diluting the average wage rate of the area.

The Economic Development Element contains policies which complement and expand upon the economic development program. The policies cover a wide range of activities, including attracting additional high-paying jobs and diverse businesses to the community, recognizing the importance of workforce training, education, and retention of talent, and investing in the success of the Redding Regional Airport for passenger connectivity and trade.

Preparation of the General Plan

The preparation of the General Plan Update was a comprehensive and an inclusive process that involved active participation of various subject matter experts and stakeholders who worked closely with the community. These focus group members played a crucial role in shaping the vision and priorities of the City's General Plan update. The first step in the update process was to conduct an analysis to assess whether existing policies were still relevant or were in need of change or deletion, and to identify opportunities for improvement. This data was extensively used in drafting the community survey through Polco, a nationally recognized organization that provides online community engagement polling platforms for use by local governments.

The project team partnered with Polco to engage residents and gather feedback regarding priorities and aspirations of the community for the future of the City. This data was invaluable in understanding the diverse perspectives of the community and helped to initiate the conversation at the focus group discussions.

During preparation of the draft General Plan update, staff conducted 31 focus group meetings over the course of a year to gather valuable input through in-depth discussions on various topics related to the General Plan. The focus groups members brought their extensive knowledge and experience to these sessions, offering insights and recommendations that helped guide the Plan's development. The draft document was reviewed by various City departments and agencies before being reviewed by the Planning Commission in an informal workshop setting in the first quarter of 2023.

Recognizing the importance of youth engagement, a specific strategy was implemented to involve young residents of the Shasta High and Enterprise High Schools, the largest public high schools in Redding, in the update process. Staff conducted interactive sessions to encourage the participation of Redding's youth, allowing them to contribute their ideas and perspectives on the issues that directly affected them. The data thus gathered were used to modify/update recommendation of the draft document.

Additionally, the project team also organized podcast sessions, video releases, social forum updates, and a dedicated webpage to get Redding residents involved in the process. Staff also conducted several public information sessions as the Public Review Draft General Plan was published, in order to obtain formal comments. These information sessions were designed to educate residents on the update process, the recommendations made in the Plan, and the next steps involved in the adoption of the document.

Throughout the process, the focus group discussions, community survey results, and youth engagement activities played a pivotal role in informing the draft policy language for the various Elements of the Plan. This collaborative and inclusive approach ensured that the inputs received were carefully analyzed and synthesized to assist in developing robust and forward-thinking policies regarding the City's current and future needs and serve as a roadmap for guiding growth, development, and sustainability.

Organization of the General Plan

The General Plan (text containing discussions, goals, and policies) constitutes the formal policy of the City of Redding for land use, development, and environmental quality. It includes goals, policies, standards, implementation programs, quantified objectives (for housing), the General Plan Diagram, and circulation diagrams.

The policy document is divided into nine elements:

- Community Development and Design (Land Use Element).
- Transportation (Circulation Element).
- Natural Resources (Conservation and Open Space Elements).
- Public Safety.
- Noise.
- Public Facilities and Services.
- Parks, Trails, Recreation.
- Economic Development.
- Housing.
- Community Health, Wellness, and Environmental Justice.

Each element is composed of three sections. The first section discusses the purpose and content of the element. The second section cites the authority (State law) by which the element is included in the General Plan. The third section lists the goals and policies of the element.

The General Plan Diagram depicts the land use patterns for the City for the time frame of the Plan. The Diagram must be used in conjunction with the Plan text in order to gain a full understanding of the City's development strategy. The Community Development and Design Element describes each land use classification found on the Diagram and specific allowable density and intensity ranges for each land use category.

Goals, Policies, and Implementation Measures

The General Plan is a set of integrated and internally consistent goals and policies under each element. Goals are long-range; they state future conditions—the community's vision of what should be done and where. Policies are intermediate-range and state the City's clear commitment on how these goals will be achieved. Some policies need to be reexamined and revised during the life of the Plan to reflect changing community conditions, State requirements, funding, etc.

Consistency of the General Plan

Internal Consistency

California Government Code Section 65300.5 requires that the "General Plan and elements…comprise an integrated, internally consistent and compatible statement of policies." This means that all goals, policies, standards, and implementation programs outlined in one element of the General Plan must be consistent and agree with those outlined in all other elements. In addition, all maps and diagrams within the General Plan must be consistent with the text. The General Plan of the City of Redding has been prepared in compliance with these internal consistency requirements.

Consistency with Other Planning Processes

To be an effective guide for future development, the General Plan must provide a framework for local development that is consistent with the policies of relevant State, regional, and local programs and regulatory agencies. This General Plan takes into consideration the following plans or regulations:

- Surface Mining and Reclamation Act.
- Sphere of Influence as established by the Local Agency Formation Commission (LAFCO).
- Shasta County Air Quality Attainment Plan.
- Shasta County Hazardous Waste Management Plan.
- Integrated Solid Waste Management Plan.
- Regional Transportation Plan.
- Comprehensive Land Use Plans for the Redding Regional Airport and Benton Airpark.

In addition, the General Plan is subject to the requirements of the California Environmental Quality Act (CEQA). A separately bound Environmental Impact Report (EIR) has been prepared in compliance with CEQA requirements to evaluate and disclose the environmental impacts associated with implementation of the General Plan.

Implementing the General Plan

As mentioned earlier, the General Plan serves as the "constitution" for land development in a locality. Land use regulations and plans enacted by a local government are the principal means by which the goals and policies of a General Plan are implemented. Therefore, all such regulations and plans must be consistent with the General Plan. These include zoning ordinances, subdivision ordinances, capital improvement plans, and specific plans.

Ensuring that existing ordinances and plans are consistent with the General Plan is one method of implementing the General Plan's policies. Other methods include development of new ordinances and plans, financing programs, capital improvement decisions, enforcement actions, and the development review process.

Legally Existing, Nonconforming Land Uses; Approved Development Permits

It should be noted that the General Plan land use designations are applied to vacant properties as well as to built-up areas that have been developed over time under changing regulations with a variety of densities and intensities. It is not the intent of the General Plan to create large numbers of nonconforming uses or structures, but the complexity of the land use pattern in some parts of the City makes it impossible for the General Plan Diagram to accurately reflect every preexisting use, nor is it desirable to reflect them all at the General Plan level. Therefore, zoning regulations should not designate as nonconforming every use or structure that does not fall within the density, intensity, or use standards of the General Plan use category. Conversely, the overall intent of the Land Use Plan is to establish districts which will afford the City an opportunity to identify the appropriate zoning requirements more closely in the future.

Maintenance of the General Plan

State law also defines how cities should maintain their Plan as a contemporary policy guide. Section 65400 (b) of the California Government Code requires that each planning department report annually to the City Council on "the status of the plan and progress in its implementation."

To implement this requirement, the Planning Commission will review the General Plan on an annual basis to monitor its implementation and to ensure consistency with current Federal, State, and local regulations and policies. The status of the General Plan will be presented to the City Council and should address the following items:

- A list and brief description of approved/denied General Plan amendment requests.
- A summary of capital projects that have been constructed in accordance with the Transportation and Public Facilities and Services Elements.
- Recommendations for resolving any identified inconsistencies with applicable Federal, State, and local regulations or policies.
- A summary of implementation programs completed during the prior year.

- A schedule identifying implementation programs to be completed during the upcoming year.

- A summary of mitigation monitoring actions taken during the prior year.

The Housing Element is the only element which has a mandatory schedule for review and updating. Redding last adopted this Element in 2020, which has been assigned an eight-year schedule for ongoing updates. The City will continue to review and update the Housing Element as necessary in accordance with the State Law.

Although the General Plan should be designed to provide clear guidance for development in the Planning Area, it is also meant to be a flexible planning tool for the community. Community needs and values, environmental conditions, and Federal and State policies can change over time. The General Plan needs to be able to respond to these changes. State law permits up to four amendments per year of each element of a city's General Plan. It is also anticipated that the City will undertake a comprehensive review of the General Plan every five to seven years. This allows the community to reassess community expectations, planning assumptions, etc., and revise its goals, policies, and programs accordingly.

Public Review Draft Community Development and Design Element

Introduction

Purpose and Context

A city's growth potential is dependent on its ability to transform, create and preserve attractive streetscapes, buildings, streets, and public spaces that enrich the quality of life for its residents and visitors, thereby creating a compatible and complementary mix of land uses that enhance social life and a vibrant economy. Redding has dramatically changed since the early 2000s. The urban setting has gained in its regional importance with trade, transit, tourism, culture, education, recreational opportunities, and development. The policies of the Community Development and Design Element (referred to as a "Land Use Element" in the California Government Code) will exert a strong influence on how the City will grow in the coming decades and significantly impact the quality of life of the community as well as guide physical changes that exclusively occur based on market demand. The General Plan Diagram, along with the policies and implementation strategies in this element, will determine the location, intensity, design, and quality of new development and guide the preservation of natural resources that are key to Redding's identity.

Since the previous adoption of the Community Development and Design Element in 2000, the global issue of climate change has become a major concern related to the efficiency of cities, demanding more attention be placed on vehicular emissions, travel patterns, land development, sprawl conditions, and building design. The State of California adopted the Global Warming Solutions Act (Assembly Bill [AB] 32) to establish the first comprehensive program of regulatory and market mechanisms in the nation to achieve greenhouse gas (GHG) emissions reductions. AB 32 set an emission limit for 2020 to be at the same level as in 1990. It also pointed the state toward an 80 percent reduction in GHG emissions by 2050, with an interim threshold that communities are required to meet in land use and transportation planning efforts. The next 25 years are crucial for the City as there is an expected growth in population and a change in demographics, resulting in the need for newer, efficient, and sustainable buildings, reduced sprawl, attractive and healthier neighborhoods, efficient modes of transportation, and a potential boom in the economy with the emergence of new technologies that could redefine the typical development patterns and practices of the past decades.

The Community Development and Design Element is also the foundation for all other elements of the General Plan. Land Use policies and the General Plan Diagram affect every development in the City. Together, they determine the use of any given parcel and provide overall consistency and compatibility between land uses. Land Use policies and the Diagram have a direct bearing on vehicular traffic, the feasibility of public transportation and multi-modal transit options, efficiency of end-to-end transit services, and air quality.

It is important to balance the natural and built environments to achieve a sustainable urban setting. The Community Development and Design Element features:

- Sustainability by design.

- Reduced Vehicle Miles Traveled (VMT), creating walkable, bikeable neighborhoods.
- Opportunities to enhance neighborhood services.
- Safe, convenient, and low-stress walkable and bikeable streets.
- Attractive and effective stormwater management design.
- Comprehensive and healthy tree canopy.
- Accessible parks, open spaces, and public facilities.
- Diverse and affordable housing choices.
- Efficient critical infrastructure such as utilities, roads, airports and safety.
- Preservation and enhancement of neighborhood character.
- Diverse economic and commerce opportunities.
- Inclusivity.

Authority

California Government Code Section 65302(a) states that a city's general plan shall include:

"... a Land Use Element which designates the proposed general distribution, location, and extent of the uses of the land for housing; business; industry; open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty; education; public buildings and grounds; solid and liquid waste-disposal facilities; and other categories of public and private uses of land."

The Land Use Element is also required to include a statement of the standards of population density and building intensity recommended for the various districts and other territories covered by the General Plan.

Section 65303 of the California Government Code states that a general plan may include any other optional elements as long as they relate to the physical development of the City. Due to the inter-relationship between land use, urban design, and historic preservation, the City of Redding has chosen to name this element the Community Development and Design Element, which, together with the other mandatory and optional elements of this General Plan, includes all the necessary provisions of the Land Use Element as required by the Government Code.

In addition to meeting the mandatory requirements of a land use element, the Community Development and Design Element provides guidance in terms of the community's expectations and desires relative to development design and aesthetics.

Background for Planning

In addition to statistical analyses, it is also essential that the community is regarded in the context of its integral parts. It is important to understand how and when growth in the City occurred, to be knowledgeable of market and other determining forces, and to look at past failings and consider them as opportunities to improve the City for all who live in, work in, and visit the community.

This section provides a sense of how Redding has grown over time and the impacts of that growth, and it illustrates some of the practical limitations that cities like Redding face when planning for the future. It also highlights the characteristics of several sectors of Redding, setting the stage for needed policies to address a number of issues.

Development Pattern and Land Use Organization

The original Redding town site was a mere seven-block by seven-block area bounded by North Street (now Eureka Way) and South, East, and West Streets. By 1998, the City had grown to approximately 59 square miles—10 square miles larger than San Francisco. Yet, Redding's population in 2020 was approximately 91,743 residents (about 11 percent of San Francisco's population of 873,965 residents); with a person per square mile of incorporated territory (ppsm) of 1,569, ranking among the least-densely populated metropolitan areas of the North State. The following table illustrates the persons per square mile of various cities based on the 2020 federal census information.

City	Persons Per Square Mile (ppsm)
Sacramento	5,491
Modesto	5,075
Santa Rosa	4,238
Woodland	3,902
Chico	2,972
Fairfield	2,882
Redding	1,569

While in part the result of topography, flood-prone lands, and physical barriers (such as the Sacramento River, Interstate 5, and the Union Pacific Railroad), the relatively low-density, discontinuous nature of Redding's development pattern comes at a cost. These include increased costs of providing public services; lessening of community identity, or "sense of place"; decreased air quality due to a near-total reliance on the automobile; and a neglect of older, established residential neighborhoods and commercial areas in preference for development in new areas.

Few cities have the luxury of sole control over all land uses contained within its boundaries. Redding is no exception. Redding has grown geographically through the annexation of lands which were formerly outside its jurisdictional control. In fact, some of the larger annexations (e.g., Enterprise and Cascade areas) added not only significant territory to the City but increased its population base and level of development. In part, this helps to explain why there seems to be no organizing principle underlying Redding's urban structure. It also serves to explain the lack of

consistency in infrastructure improvements, landscape, and building design as well as the lack of public street access to individual properties found in various parts of the City.

Opportunities to Influence Development Patterns

This General Plan contains a number of policies that will serve to direct growth, with a priority on those areas where infrastructure and urban services are already available or can economically be provided in the short run. These policies are reflected on the *General Plan Diagram*—the exhibit which depicts how each property in the Planning Area may be used for a variety of land uses. Additionally, these policies are also reflected in exhibits depicting "Opportunity Areas" and identified "Focus Areas." The policies include focusing growth within the current City limits; providing incentives for higher-density development and mixed-use projects, both in Downtown and other key locations; encouraging infill and controlling the development and expansion of strip commercial; concentrating the growth of regional shopping facilities (i.e., large discount and "big box" retailers) in relatively few locations; and providing neighborhood shopping near residences to make the neighborhoods more walkable and bikeable. However, the Plan also acknowledges that additional land will eventually be necessary to accommodate the City's growing population.

Community Characteristics

Redding's Planning Area can be divided into five primary sectors, each of which is shaped by its unique characteristics, histories, and issues. These areas are:

- Central and West Redding
- East Redding (Enterprise)
- Dana Drive and Northeast Redding
- North Redding
- South Redding

Central and West Redding

Central Redding is the location of the City's original commercial and office core. Local government facilities and most of its older residential districts are also located here. Spreading outward from the original town site astride the railroad in a grid pattern typical of the time, Redding grew north and east to the edge of the bluff that borders the Sacramento River, south along the highway and railroad spine, and west into the hills and gullies. Extension of the early street pattern across the ravines created unusable lots and "paper" streets that remain undeveloped today.

Some of the City's most unique and historic residential areas are located west of Central Redding in the Magnolia neighborhood and its adjacent neighborhoods. Farther west, beyond Benton Airpark and the now-closed Benton Sanitary Landfill, lies a large, residential district, consisting

almost exclusively of single-family subdivisions. Development of some of these areas began in the early 1950s, and new developments continue to be constructed today.

West Redding is home to Mercy Medical Center, Shasta Regional Hospital, and numerous doctors' office complexes and professional offices. While Downtown Redding began to witness a renaissance of sorts beginning in the early 2020s with the development of significant mixed-use development and higher-density housing projects, Central and West Redding as a whole continues to have an imbalance of available housing opportunities. Land use imbalances of various types occur in other geographic areas as well, but the broader Downtown area has limited opportunities for multiple-family development outside of the Downtown Core.

With the construction of Interstate 5, most new commercial investment was directed to locations outside Central Redding. The expansion of County government and court offices, Shasta Regional Medical Center, and Mercy Medical Center Redding also promoted office construction along Court, Oregon, and West Streets, displacing older residential uses.

Downtown Redding remains an important area, even though it was bypassed by the construction of Interstate 5 which encouraged most new retail development to locate east of the river. Two highways, State Routes 44 and 299, converge Downtown, which contributes to its viability. Recent efforts, including mixed-use and housing projects, streetscape improvements, opening of downtown streets to vehicle use, projects that provide interconnecting bicycle facilities, and projects to improve the appearance and pedestrian orientation of Downtown streets demonstrate the community's commitment to maintaining and enhancing the unique character of the heart of the community. The continued development of the Turtle Bay Exploration Park area, the Sheraton Hotel, the Sundial Bridge, and the updated Downtown Specific Plan have served to emphasize the importance of the City's core area.

East Redding (Enterprise)

Development in the Enterprise area occurred almost entirely in the 1950s and '60s under Shasta County jurisdiction. Early subdivisions were located along Old Highway 44 (now known as Cypress Avenue), Churn Creek Road, and Hartnell Avenue. Subsequent development has taken place both to the north boundary of this area, up to the new State Highway 44, and to the south into the Churn Creek Bottom area. The street pattern in some older residential areas is poor, with long, dead-end streets and offset intersections. A lack of adequate subdivision regulations in the early days of development permitted the creation of large, deep lots surrounded by smaller lots and hundreds of landlocked parcels that can be reached only by private roads or by access drives across other properties. This lot pattern makes further development inefficient and difficult, and necessitates providing new and costly streets and infrastructure.

Like the residential areas, commercial development in the Enterprise area originally occurred in a haphazard manner along Old State Highway 44, Bechelli Lane, Hartnell Avenue, and at freeway interchanges. Access to many stores in these locations is poor, and the nature of this strip-type development, with each establishment having its own parking lot and driveway, precludes parking once and visiting several businesses. The construction of Interstate 5 had a noticeable impact on commercial growth at the north end of this area along Hilltop Drive and other easily accessible

locations. Service stations, motels, restaurants, and other uses that seek readily visible sites and easy freeway access can be found in this area. This area continues to develop with commercial uses, which can now be found along Churn Creek Road and the surrounding collector streets.

Dana Drive and Northeast Redding

Following the construction of Interstate 5, a noticeable pattern of commercial development, together with additional suburban residential growth, occurred north of State Highway 44 along Dana Drive. Additional growth also occurred along the northern extension of Churn Creek Road, along Browning Street, and eastward along Old Alturas Road. Commercial development largely commenced with the Mount Shasta Mall, which is located at the northeast corner of Hilltop Drive and Dana Drive. Subsequent regional commercial development has since spread eastward to Victor Avenue. For most residents and visitors, this area and the Dana Drive area represent the major retail/service area in Redding, with which, for a variety of reasons such as freeway/highway access, available land, and large parcel sizes, the Downtown area cannot compete—nor should it strive to do so.

In conjunction with commercial activities, residential development flourished to the north on Churn Creek Road and to the east on Old Alturas Road. New residential development continued to occur in the early 2020s. Additionally, the McConnell Foundation headquarters and its adjacent open space properties, development of Redding School of the Arts, construction of Big League Dreams, California Soccer Park, and the City's Corporation Yard and solid waste transfer facilities, along with the installation of Redding's first two street intersection roundabouts, have introduced a communal sense of pride in this once outlying area of the City.

Along North Market Street, formerly Highway 99, Redding's "Miracle Mile" is lined with a variety of motel, restaurant, retail, and auto sales establishments. Adjoining lowlands to the west have been developed with residential subdivisions and affordable housing units. Lake Redding/Caldwell Park extends along the north bank of the river on each side of the railroad trestle. This major recreation area has picnicking, a playground, an Olympic-sized swimming pool and related facilities, a skate park, and other public and private facilities.

Located on the east of Miracle Mile, the McConnell Arboretum and Botanical Gardens at Turtle Bay which is associated with Turtle Bay Exploration Park, together with the Turtle Bay School, have added a new community dimension and vitality to this area.

Lake Boulevard is the main artery of the Buckeye area, a major portion of which was annexed to the City of Redding in 1969. Strip commercial development is situated along Lake Boulevard, and there is scattered residential development in the area. Landlocked parcels are common, with heavy dependence on private roads for access. Mobile homes are a major residential type in this area, both in mobile home parks and on individual lots. The pattern of small ownerships and the prevalence of mobile homes in some areas may tend to discourage subdivision activity. More recent development activity includes the construction of the Kennent Court apartment project, planning for the Panorama Park, and the addition of retail services along the corridor.

South Redding

Much of the development of South Redding came after World War II when subdivision activity expanded into the lower elevations and along the Anderson-Cottonwood Irrigation District Canal (ACID). Scattered developments built up in the Live Oak/Bonnyview (Cascade) area to the south and along ridge tops in the southwestern part of the Planning Area. Also, to the south, the old principal traffic artery, Highway 99 (now known as State Route 273) became a commercial strip lined with an assortment of motels, truck stops, and service stations; industrial and distribution establishments; and local retail services. As a commercial gateway to the City, this area has largely become obsolete in design and function.

Several residential developments have occurred in the area, including the Country Heights Subdivision along the western ridges, as well as new developments in the Creekside, Hemlock, and East Bonnyview Road areas. The latter developments have led to a reduction in the pastoral setting that was once prevalent in the area. Recent developments include the Stillwater Business Park, South Bonnyview interchange expansion, significant improvements at Redding Regional Airport, and residential development that has occurred since the 2000-2020 General Plan was adopted.

Opportunities to Improve the Community's Appearance

One of Redding's greatest assets is the Sacramento River. The rippling water, sheer cliffs, tree-lined banks, and the network of creeks and gullies leading to the river are all important scenic assets as well as potential recreational areas. The City and the community take pride in protecting the river and enhancing its quality. The Redding Riverfront Specific Plan will address the need to encourage the development of prominent sites with attractive, well-designed buildings and public access.

The approach to Redding from the east (State Route 44) offers a fine view of the City, with Mercy Medical Center Redding, Shasta Regional Medical Center, and the new Shasta County Courthouse standing out as landmarks in the emerging skyline downtown. This attractive gateway to the City should be preserved and improved, ensuring that the view of the foothills beyond remains as an open and largely undeveloped backdrop.

South Bonnyview Road and Cypress Avenue provide the freeway traveler with services, and also give visitors and residents access to Central Redding. As an example of these efforts, the City has taken steps to improve the visitor and resident experience by working with property owners in the area to replace overhead utility lines along Hilltop Drive with landscaping, and to reduce the expanse and bleakness of undeveloped land and large parking lots. The development of the South Bonnyview interchange has had a dramatic impact on the access and look of the area.

North Market Street could provide a striking entrance to the City as the motorist crests the hill at Lake Boulevard and begin the descent to the river. This stretch of road, referred to as the "Miracle Mile," falls short of providing this desired entrance. Excessive signage and limited landscape detract from the corridor. Landscape medians, the use of decorative pedestrian-scale street lighting, and the installation of a "Welcome [to] Redding" sign with a combined landscaped water feature,

have changed the aesthetics to create a more welcoming entrance to Downtown Redding. However, more trees and landscaping of the broad roadway are needed, along with more restrained signage that identifies each use without blocking out the next. North Market Street should have the aspect of a parkway, leading to the Sacramento River Bridge with its views of Shasta Bally and Lake Redding, Caldwell Park, and the bluffs that mark the edge of the Downtown. Emphasis should be placed on providing high-quality visitor services such as restaurants, motels, and similar services.

South Market Street is an extended strip of motels mingled with commercial services and industrial uses and continues to be an important artery for local traffic entering Redding. North of the railroad underpass, Caltrans has installed median landscape, sidewalks, and some bulb-out landscape features, but the number of smaller parcels, access driveways, intersecting streets, and other impediments precluded the use of extensive landscaping. More restrained signage and a general upgrading of the appearance of commercial establishments lining the street would improve the appearance of the corridor. Additional plantings along each side of the corridor, including clusters of trees supplemented with bands of low-maintenance shrubbery, could also do much to improve the appearance and create visual interest.

Eureka Way, entering Redding through the western foothills, is another important gateway to the community. Apartment and office development, compatible with the terrain and nearby high-quality residential areas, has precluded to some extent the commercial strip that might have otherwise arisen. Continued and careful zoning regulations and design guidelines are needed to ensure a high standard of development.

Several retail centers throughout the community, which were constructed prior to current landscape standards and adopted design criteria, contain vast areas of uninterrupted asphalt, and building façades that lack any unique architectural features. Comprehensive remodeling and redevelopment of these facilities should be encouraged to address not only building façade upgrades, but overall landscape and signage. The impact of such remodeling projects, or redevelopment of aging centers with new mixed-use developments would be more than visual. These kinds of improvements could bring new life to older commercial areas and help them to compete more effectively with newer commercial developments.

It is imperative to continue efforts to revitalize the Downtown area so that it is consistent with the Downtown Redding Specific Plan. In the early 2000s, interest in the development and reclaiming of Downtown as the heart of the City seemingly exploded as new development concepts were proposed and constructed. Given the community interest in downtown revitalization, private market forces, together with available grants and the adoption of a robust Downtown Specific Plan, have changed the outlook of Downtown, thus creating a stronger identity for the community.

The Land Use Plan

General Plan Land Use Classification

The following describes the land use classifications used in the General Plan. The classifications shown on the General Plan Diagram designate the types of uses that are allowed within each area

of the City. The classifications fall within eight major land use categories: Residential, Commercial, Industrial, Public and Institutional, Airport Service, Parks, Greenway (Open Space), and Critical Mineral Resource Overlay.

Residential densities and commercial (e.g., nonresidential) intensity are computed using gross developable acreage. For purposes of this General Plan, gross developable acreage refers to the land remaining for development (including roadways) after environmental constraints (floodplains and slopes exceeding 20 percent) have been deducted from gross acreage. Required resource buffer areas as discussed in this General Plan, while not available for development, may be included as developable acreage for the purpose of calculating project density.

Each of the classifications listed below is accompanied by a general description and context for the use of the classification. The classifications are implemented by the City's Zoning Code.

Residential

The General Plan Diagram of the General Plan includes eight residential categories which provide for a full range of housing types for the City.

Each residential category includes a density range that establishes each classification's minimum and maximum densities. While the City assumes that variations in density and private market conditions will determine the types of housing produced, the City will utilize the policies of the various elements of this Plan to evaluate development proposals for appropriate densities within the given ranges.

Uses that are typically located in residential areas, such as churches, schools, parks, residential care facilities, and child-care facilities, are not specifically addressed within the residential definitions but are appropriate uses in residential areas. Further, uses such as offices, clinics, and similar uses may be established in certain multiple-family areas as determined appropriate by implementing zoning.

The State of California under Section 65583(c)(7) requires cities and counties to develop a plan that incentivizes and promotes the creation of accessory dwelling units to increase the supply of affordable housing, effective on January 1, 2021. Accessory Dwelling Units and Junior Accessory Dwelling Units are allowed in single-family or multi-family residential zones and may exceed the allowable density for the lot upon which the unit is located (refer to Redding Zoning Ordinance 18.43.140).

Residential – 1 Dwelling Unit Per 5 Acres and Larger (5 a/u)

- Characterized by very large rural lots, a minimum of five acres in size.
- Areas which have historically been utilized for agricultural purposes and constrained by relatively extreme topography or are in outlying rural areas.

Residential – 1 Dwelling Unit Per 1 to 5 Acres (1 to 5 a/u)

- Characterized by large rural lots, generally greater than one acre in size.
- Applied to hillside areas and to transition areas between agricultural or other rural uses and urban uses.
- Clustered development with smaller lots is encouraged provided that the project density does not exceed that allowed for the property.
- Clustering should provide consolidated open-space areas in excess of that which would otherwise be achieved.

Residential – 1 to 2 Dwelling Units Per Acre (1 to 2 u/a)

- Accommodates the needs of residents who desire large parcels (20,000 square feet or more).
- Sufficiently flexible to be used in terrain that would otherwise require extensive grading to develop (10 to 20 percent average slopes).
- At the upper end of the density range, subdivisions should include fully developed streets and sidewalks and be served by public sewer and water.
- At the lower end of the density range, particularly in hillside areas, alternative street designs and pedestrian facilities may be appropriate.

Residential – 2 to 3.5 Dwelling Units Per Acre (2 to 3.5 u/a)

- Allows for the development of subdivisions that portray a suburban lifestyle.
- Lots are generally not smaller than 8,000 square feet.
- A typical development would include larger-than-average to average-size homes organized around planned open-space areas and parks where feasible, to provide visual relief and recreational opportunities for residents.
- The upper end of the density range is generally not appropriate for properties with natural slopes that exceed eight percent.

Residential – 3.5 to 6 Dwelling Units Per Acre (3.5 to 6 u/a)

- Intended to accommodate detached or attached single-family homes on a variety of lot sizes (generally not less than 5,000 square feet in area), or

- The clustering of lots separated by common open spaces to accommodate a range of residential housing types, including duplexes.

- Not appropriate for natural slope areas exceeding eight percent, except on large projects where slope areas can be avoided, or the units otherwise designed to be compatible with natural breaks in the hillside terrain.

Residential – 6 to 10 Dwelling Units Per Acre (6 to 10 u/a)

- Intended to accommodate single-family attached or detached units, and/or townhouses.

- Multiple-family projects and mobile home parks are also appropriate when located near the arterial or collector street system.

- Clustering is encouraged to provide common open spaces and recreational amenities to the residents.

- Not appropriate on lots with slopes exceeding eight percent, except on large projects where slope areas can be avoided, or the units otherwise designed to be compatible with natural breaks in the hillside terrain.

Residential – 10 to 20 Dwelling Units Per Acre (10 to 20 u/a)

- Intended for multiple-family projects ranging from townhouses to apartments, typically located on arterial or collector street(s).

- Not appropriate on parcels with slopes exceeding eight percent, except on large projects where slope areas can be avoided, or the units are otherwise designed to be compatible with natural breaks in the hillside terrain.

Residential – 20 to 30 Dwelling Units Per Acre (20 to 30 u/a)

- Intended for multiple-story, multiple-family projects, including condominiums and apartments located within or adjacent to Downtown or along arterial corridors served by public transit.

Commercial

The following commercial land use classifications accommodate the various segments of the commercial market. These range from small, neighborhood-serving commercial projects to commercial projects that are regional in scale. Office uses are also accommodated in these classifications. Residential uses may be appropriate in conjunction with commercial uses or in standalone configurations in all commercial classifications as defined below; however, residential uses in the Heavy Commercial and in the two "Office" classifications may be limited to appropriate areas.

Limited Office (LO)

- Acts as a transition area within commercial areas or between commercial areas and residential areas.

- Development is typified by a building or a cluster of buildings built at a residential scale that provides professional office space.

- Generally single-story; however, with adequate separation from residential uses, two-story buildings may be appropriate.

- Service businesses that are quiet and compatible with residential uses also may be permitted subject to appropriate performance standards.

General Office (GO)

- Appropriate for professional and business offices and personal-service businesses with appropriate and compatible accessory uses.

- May also be used for rest homes; nursing homes; day-care facilities; hospitals; religious, educational, cultural, and public-utility uses; multiple-family housing; and financial institutions.

- Ancillary retail uses, such as pharmacies, are appropriate, as are "sit-down" restaurants.

Neighborhood Commercial (NC)

- Provides convenience and neighborhood shopping areas that provide a range of day-to-day retail goods and services.

- Neighborhood-commercial uses can range from free-standing "mom-and-pop" stores and service establishments to a cluster of uses on parcels of several acres.

- Auto-oriented uses, other than appropriately designed service stations/minimarkets, are not allowed.

Shopping Center (SC)

- Provides for shopping centers serving a larger market area than a neighborhood center, but a smaller market than a regional center.

- A typical center includes two or more anchor tenants, such as a supermarket and combined drug/variety/garden business; tenants offering consumer goods and personal services; and office and clinic uses.

- Sites generally will range from 5 to 20 acres and accommodate 50,000 to 200,000 square feet of building area.

- The scale of development, including individual buildings, will be at a smaller scale than that found in developments servicing a regional market.

Regional Commercial (RC)

- Accommodates a mix of retail uses and associated services on a regional scale, including malls with several full-line department stores as anchor tenants.

- Power centers and free-standing retail, office, and service establishments are also appropriate.

- Individual buildings may range from 100,000 to 200,000 square feet of floor area; enclosed malls could range from 500,000 to over one million square feet in floor area.

General Commercial (GC)

- Intended for existing commercial strips on arterial streets and interchange areas where commercial concentration is desirable.

- Allowable uses include retail stores, offices, and personal-service establishments.

- Financial institutions, private schools, day-care facilities, convalescent hospitals, automobile sales and services, and similar uses also may be permitted subject to appropriate standards.

- The scale of development, including individual buildings, will be at a smaller scale than that found in developments servicing a regional market.

Heavy Commercial (HC)

- Intended to provide sites for commercial businesses, particularly those not permitted in other commercial areas because of the large scale of the buildings and frequent truck deliveries causing adverse impacts on other businesses.

- Includes automobile services, building materials storage and sales, nurseries, equipment sales, wholesaling, storage, and similar uses.

- Typical retail commercial businesses are also allowed, although this classification is not intended for shopping centers, “power centers,” or similar retail development.

- Integrated residential uses to create a mixed-use environment at appropriate locations to enhance retail viability and the use of available services may be allowed.

Industrial

The industrial land use classifications allow different types of warehousing, manufacturing, or processing businesses to be located in appropriate areas by accommodating a variety of manufacturing and employment activities ranging from small employee-intensive businesses to large capital-intensive businesses. Ancillary uses and restaurants are appropriate. Residential uses, except as necessary to provide facilities for security, are not allowed.

General Industry (GI)

- Allows a wide variety of industrial activities and related uses generally characterized by the limited potential to create significant adverse visual, noise, or other impacts to adjoining public and residential properties.

- Uses may include industrial and business parks, offices, manufacturing, processing, assembling, research, warehousing, small- and large-scale wholesale distribution, heavy equipment sales and repair, screened outdoor storage, and similar and compatible uses.

- Supporting retail and restaurant uses may be allowed subject to size limits and siting criteria.

- Uses characterized by substantial outdoor processing and/or storage should generally not be allowed under this classification (see "Heavy Industry").

Heavy Industry (HI)

- Allows for the broadest range of industrial uses, including manufacturing, processing, assembling, research, warehousing, small- and large-scale wholesale and distribution, railroad facilities, and similar and compatible uses.

- Supporting retail and restaurant uses may be allowed subject to size limitations and siting criteria.

- Uses that are characterized by substantial outdoor processing and/or storage, including concrete and asphalt batch plants, automobile dismantling yards, bulk materials and equipment storage, full-line lumber mills/yards, manufacturing of concrete products, and similar uses.

Other Classifications

Airport Service (AS)

- Includes activities that are typically associated with airports and airport-related uses.

- Includes a full range of activities such as aircraft sales, service, and storage; charter services; and ancillary visitor services such as food, lodging, and car rental.

- The uses may either be publicly or privately operated and must conform with any applicable adopted Airport Land Use Plan and Policies.

Public Facilities or Institutional (PF-I; PF-I-S)

- Intended for public and quasi-public facilities, including, but not limited to, government services and facilities, fire stations, wastewater treatment facilities, electrical substations, airports, domestic water treatment and storage, landfills, and similar uses.

- Appropriate for institutional uses, such as schools and accredited secondary educational facilities, hospitals, and cemeteries, and appropriate lands controlled by philanthropic and nonprofit organizations for existing or future public uses.

- Public facilities sites that occupy less than two acres need not be shown on the General Plan Diagram.

Parks (improved open space) (PK); Golf Course (public) (PK-G)

- Provides for both public and private open space.

- Primary land uses include existing and future large neighborhood and regional parks, golf courses, athletic fields, and open-space areas adjacent to improved parks or trails.

- Does not depict existing parks less than two acres in size.

- Public golf courses designated on the General Plan Diagram of "Park/Golf" may be redeveloped to residential uses consistent with the residential density immediately abutting the property.

Recreation (REC)

- This classification typically denotes areas for active water and/or shoreline-oriented recreation that utilizes the Sacramento River as an asset.

- Use of facilities would be water-oriented, generally open in nature, seasonal in use, and without significant investment in buildings.

- Uses in this category should maintain public views of and enjoyment of Kutras Lake and Motel Lake.

Greenway (GWY)

- "Greenway" is natural open space and includes slope areas in excess of 20 percent and the 100-year floodplain of the Sacramento River and its tributary streams.

- Natural open space is located predominantly along the Sacramento River, its tributary streams, and the bluffs and streams of West and East Redding.

- These natural land and water areas should not be urbanized or significantly altered because of the inherent dangers to life and property and irrevocable damage to the natural environment.

- Specific limits of the "Greenway" on any property must be determined by a topographic or flooding analysis particular to that property.

These natural areas are an important local resource and serve as places in which flora or fauna can be maintained in their natural state. In addition, these areas provide relief from urbanization, reduce siltation from excessive grading, buffer various land use activities and transportation routes, are an important visual resource, and can be part of the City's urban trail system.

Mixed Use Neighborhood Overlay

- Allows for a greater variety of uses and flexibility in site planning than is generally permitted in other classifications.

- The intent is to allow the creation of a mix of land uses in a compact pattern that will reduce dependency on the automobile, reduce air quality impacts, and promote high-quality, interactive neighborhoods.

- Mixed-use neighborhoods are characterized by interconnected streets, vertical and/or horizontal mix of commercial and residential uses, and facilities that encourage pedestrian activity and transit accessibility.

The General Plan Diagram depicts two areas where mixed-use projects are encouraged. These areas include Downtown ("Mixed-Use Core") and two areas depicted by the "Mixed-Use Neighborhood Overlay" classification.

The "Mixed-Use Neighborhood Overlay" areas are predominantly undeveloped and have sufficient land area for development of cohesive mixed-use projects. Although not all properties identified within each "Mixed-Use Neighborhood Overlay" area must be part of an integrated development, proposed project boundaries must be logical, and it must be demonstrated that the project can functionally relate to adjacent properties consistent with the intent of this district. Mixed-use development is encouraged to develop in areas outside the designated "Mixed-Use Neighborhood Overlay" classification as well, provided that the concentration of uses is located near a transit opportunity and is designed to accommodate pedestrian activity and circulation.

Development within the identified "Mixed-Use Neighborhood" areas should be considered with the following guidelines:

- These projects result in the development of mixed-use neighborhoods generally between 20 and 160 acres in size that are developed within an average one-quarter mile walking distance of a transit stop.

- The design configuration and mix of uses provide an alternative to traditional suburban development patterns by promoting the development of pedestrian-oriented environments and the use of public transportation. This development type—also known as Transit Oriented Development (TOD)—mixes residential, retail, office, open space, and public areas, making it convenient for residents and employees to travel by transit, bicycle, foot, and automobile.

- To utilize this overlay district in developing areas, development proposals must be found to be consistent with the intent of the "Mixed-Use Neighborhood Overlay" and must be approved under the City's Planned Development District. Development proposals not consistent with this district are limited to the residential densities called for by the underlying land use classification.

- The "Mixed-Use Neighborhood Overlay" is also appropriate for use in established neighborhoods where a neighborhood plan, area plan, specific plan, or other planning effort has identified locations desirable for establishing a mix of retail, office, and residential uses to serve the neighborhood. In addition to specifying appropriate locations for mixed uses, the planning document should also establish basic design and compatibility standards/guidelines. In these instances, implementation will occur through zoning to an appropriate mixed-use zoning district.

Critical Mineral Resource Overlay

- Applied as an "overlay" designation in areas identified by the California Division of Mines and Geology (DMG) as containing mineral resources of demonstrated/measured.

- (or) inferred significance in locations that the City generally considers suitable for mineral-extraction activities.

- New development within and immediately adjacent to lands where a "Critical Mineral Resource Overlay" has been applied will be subject to discretionary approval to ensure viability.

- Uses generally viewed as incompatible within a "Critical Mineral Resource Overlay" include, but are not limited to:

- Residences in concentrations greater than one unit per 40 acres (applies to new land divisions, not existing legal parcels).
- Critical, sensitive, and high-occupancy facilities as defined in the Health and Safety Element.
- Industrial or commercial uses which are sensitive to noise, dust, or vibration.

Land Use Intensity Standards

In addition to characterizing the types of allowable land uses, the General Plan must specify standards for population density and building intensity for the various land use classifications adopted by the City. This information not only provides insight as to how many residents, jobs, and housing units will be accommodated by the Plan, but is also useful in planning for infrastructure, traffic, schools, and civic improvements. These building-intensity and population-density standards can be used to calculate "holding capacity" or "buildout."

Holding capacity is normally referred to as the number of people who could theoretically be accommodated in the Planning Area if all land were to be developed to the assumed density allowed by the land use designations of the Plan. Achieving the maximum holding capacity of a planning area will rarely occur given such factors as:

- limitations on the capacity of resources
- infrastructure
- public services necessary to support new development
- the choices by individual property owners about the appropriate extent of development on each parcel.

Vacant land use estimates for each residential classification and an assumed development density for other classifications are used to determine the holding capacity of the General Plan.

Table 1-1 estimates the number of new dwelling units and acreage for commercial and industrial development needed to accommodate the projected population growth between 2022 and 2045. The residential dwelling units needed are based on the Shasta SIMM Travel Demand Model's projections. The commercial and industrial projections assume the same developed land-to-population ratio that exists in 2022 for 2045. The table also provides an estimate of the total lands available by those broad use categories in the City limits and the Primary and Secondary Growth Areas of this General Plan.

Table 1-1 Future Land Needs/Holding Capacity

Development type	Year 2045 Land Needs	2022 Vacant Land Supply*
Residential dwelling units	7,350 potential additional dwelling units	26,000 additional dwelling units
Commercial acreage	302 potential additional acres developed	927 acres
Heavy Commercial/ Industrial acreage	416 potential additional acres developed	3,939 acres

**Source: City of Redding GIS Division*

Specific Plans and Comprehensive Land Use Plans

In some instances, more refined land use policies are appropriate to reflect the unique nature or development potential of a particular area. The City has adopted and maintains four Specific Plans including the Downtown Redding Specific Plan, the Oasis Road Specific Plan, the River Crossing Marketplace Specific Plan, and the Redding Riverfront Specific Plan which is currently being updated to be adopted in 2024.

Goals and Policies

Future Urban Area

It is the policy of the City to encourage new urban development within its Sphere of Influence to occur within the City. This enables:

- New development areas to be provided with a full range of community services.
- Necessary service provision.
- Logical service boundaries.

This plan establishes Primary and Secondary Growth Areas. The Primary Growth Area consists of those lands adjacent to the corporate boundaries at the time this plan was adopted where urban services can be most logically and efficiently extended to serve the area.

The Secondary Growth Area encompasses other lands within the Sphere of Influence that the City has determined may be appropriate for future urbanization and annexation to the City. Depending on Redding's land needs over the coming decades, these lands may not be urbanized during the time frame of this plan.

The following policies will influence how the City will grow in a geographic sense in the coming years. Success will take cooperation from the County of Shasta as well as the Local Agency Formation Commission (LAFCO). The intent of these policies is to direct new development into the existing corporate boundaries while preserving the ability of the City to annex and urbanize additional areas as the demands of growth require.

Goal CDD1: Encourage urban growth to occur within the city and provide a development pattern that establishes an orderly urban service area.

CDD1A - Use the General Plan Diagram and the Primary Growth Area and Secondary Growth Area boundaries (CDD-1) to determine potential growth areas within the City's Sphere of Influence. The City shall encourage sustainable development through compact, infill, higher-density development. The need for annexation shall be approved based on the cost associated with annexing areas containing existing substandard development, rural-urban interface conflicts, social, cultural, and economic impacts on existing neighborhoods and infrastructure within the City, and the ability of the City to provide urban services upon annexation.

CDD1B - Consider annexation of additional lands under any of the following circumstances. The annexation will result in:

- A more logical service area boundary.
- The elimination of an existing County “island.”
- More efficient provision of urban services.

Modifications to the Primary Growth Area boundary will be considered when the land supply for housing development declines to a ten-year supply or less and/or when appropriate land for any of the following uses is identified:

- Industrial development.
- As appropriate, assist in the expansion of community-wide educational services, including, but not limited to, Shasta Community College or other public institution(s).
- Providing additional higher-density residential lands to support the workforce.
- Providing student housing.
- Meeting the goals of the Housing Element.

CDD1C - Promote densification of the City’s urban areas through infill development, where appropriate, and before the expansion of the City’s boundaries through the approval of pre-zoning, prior to annexation. Establish specific findings and criteria for consideration of pre-zoning requests within the Primary and Secondary Growth Areas as depicted in Figure CDD-1.

CDD1D - Refer all development applications which have the potential to impact land or facilities in the unincorporated area to Shasta County for review and comment.

CDD1E - Encourage adjacent jurisdictions to adopt development standards consistent with the City's.

CDD1F - Generally oppose the development of community septic systems, wastewater package plants, and/or temporary sewage disposal facilities within the Primary and Secondary Growth areas for developments within the jurisdiction of Shasta County. Exceptions include situations where public health and safety concerns, with existing development, need to be addressed.

CDD1G - Pursue requiring unincorporated areas be annexed into the City before providing City services except under extraordinary circumstances and in accordance with City Council policy.

Providing Essential Services

A key component of rational development is ensuring that basic public facilities and services are provided to all persons in the community on an equitable basis. Equally important is ensuring that levels of service remain acceptable over time and are not eroded by additional development as it occurs in the City. Generally, citizens should not have to accept reductions in service levels that result in longer response times for emergency services, electrical "brown-outs," inadequate domestic water supply, over-crowded schools, or other inadequate public services. This section focuses on basic public facilities and services and expresses the intent to ensure that new development will be adequately served without causing a deterioration of service levels in established areas of the City.

Goal CDD2: Work to assure the ability of the City, school districts, and other public-service providers to efficiently provide expected and necessary public facilities and services to constituents.

CDD2A - The construction of private development projects should be coordinated with the timing and location of public services. Establish, through a combination of development fees and other appropriate funding mechanisms, that development pays its fair share of the costs of upgrading existing facilities and/or constructing/providing new facilities and services as determined by the direct impacts that such development has on these essential services.

CDD2B - To the extent feasible, new developments shall maintain adequate service levels for existing development while providing for the upgrade/expansion of existing public services, as appropriate.

CDD2C - Evaluate public-service impacts as part of environmental review for proposed development projects and require applicants to obtain "will-serve" letters from service providers prior to the approval of a discretionary permit or a building permit.

CDD2D - Work with school districts and public and quasi-public agencies, as appropriate, in determining the location of needed sites in the planning area for new institutional development

and facilities by reserving sites as a condition of development approval in accordance with the State law. Uses on such sites should be designed to complement the neighborhood's character.

CDD2E - Maintain adequate capacity for urban growth and coordinate with service providers to ensure to the extent feasible that all public utility facilities and services required by development are available. The City shall undertake assessments of its facilities and services as necessary and may help facilitate the creation of assessment districts, where appropriate. Where public facilities are to be provided to development by a separate water or community services district, the City shall work to coordinate planning activities with such agencies and obtain a "will-serve" letter, to ensure that the development in accordance with this General Plan can be accommodated.

Landform/Natural Environment

Natural features have strongly influenced the shape of growth and development in Redding. These features include the Sacramento River, the river bluffs, the floodplains, and the steeper hills and canyons. As early as 1970, the City recognized that its complex topography presented significant issues related to safety, visual quality, and natural resources. With adoption of the 1970 General Plan, the City established a slope development policy denying density or development credits to areas of property containing slopes exceeding 20 percent grade and substantially limited the types of allowable development in such areas. From this policy and subsequent floodplain regulations, a strong open-space network has emerged that many City residents have indicated is among Redding's most notable and desirable amenities.

The General Plan continues to recognize the need to consider topography and other natural features in conjunction with the development of the community. Issues of safety, visual quality, and natural resources have become even more significant since 1970. Therefore, the plan seeks to promote community development that respects the existing natural terrain by prohibiting development in areas with a greater than 20 percent slope and in identified floodplain areas.

Goal CDD3: Foster a proper balance between development areas and the natural environment.

CDD3A - Generally prohibit development in natural floodplains and hillsides, and those that exceed a slope of 20 percent. Minor encroachments into these areas for new developments may be authorized without a General Plan amendment, if necessary, to facilitate the installation of public utility infrastructure, provide public street emergency access, provide public trail connections, establish evacuation routes, or otherwise facilitate the construction of the project as approved by the City. In residential areas subject to flooding or slope exceeding 20 percent, the City shall allow a density of 1.0 dwelling unit per 20 acres through a Use Permit subject to appropriate standards.

CDD3B - Require buffer areas between development projects and significant watercourses, riparian vegetation, and wetlands in accordance with the Natural Resources Element and the Redding Municipal Code (RMC).

CDD3C - Work to preserve natural corridors and linkages between habitat types through project design, including, but not limited to key open-space acquisitions, floodplain and slope dedications, conservation easements, and similar mechanisms.

CDD3D - Encourage new development to work with existing site topography to avoid mass grading to the extent feasible while addressing access, drainage, and other development considerations. Where feasible, substantial fill slopes visible from roads, parks, and other public areas should be designed to mimic natural land contours.

CDD3E - Consider amendments to the Municipal Code that will provide incentives to save native trees in the development process. Such incentives may include offsetting tree planting requirements for residential and commercial development projects.

Waterways

Residents and visitors have come to depend on the recreational, scenic, environmental, and economic benefits of the Sacramento River and its tributaries. It is vital that the General Plan ensure that the man-made environment does not compromise the values inherent in the river and that future development complements its natural assets. Figure CDD-2 shows those areas along the river that are appropriate for passive uses as well as more intense recreational, cultural, and commercial uses. The following policies recognize the value of the river and its tributary streams to the vitality of Redding.

Goal CDD4: Work to protect and enhance the relationship between urban development and the Sacramento River, its tributaries, and hillside open space areas.

CDD4A - Preserve significant native trees and other vegetation along the river and creek corridors, to the extent feasible, while allowing passive recreation and providing opportunities for active uses, where appropriate.

CDD4B - Continue to acquire key lands along the Sacramento Riverfront and other waterways to provide for passive, non-motorized public access and to preserve ecological values and sensitive habitats through a combination of public and private purchases, donations, dedications, conservation easements, granting of public easements, life estates or similar strategies as funding and other opportunities become available.

CDD4C - Continue to develop along the riverfront:

- Public access areas as additional lands are made available.
- Active and passive public recreational facilities as discussed in the Recreation Element.
- Active engagement with natural areas through trails, wildlife observation, and educational displays while limiting impact on existing wildlife habitat and other developed properties.

- Pedestrian and bicycle trails and connections to schools, recreational facilities, and other major public and nonprofit/institutional-owned open-space areas.

- A robust trail network system requiring developments located along planned trail routes to dedicate trails and trail easements through private donations or by public purchase, as appropriate.

CDD4D - Work to ensure the design and construction of new bridges complement the surrounding landscape, as appropriate.

CDD4E - Pursue open space accessways that complement existing development and, where applicable, protect the privacy and security of adjoining residences.

CDD4F - Continue to conserve River, creek, and riparian corridors by maintaining development buffers generally in accordance with Figure CDD-3. Work with local and regional agencies on mapping and maintaining an inventory of sensitive, rare, and endangered flora and fauna contained in these areas.

CDD4G - Consider a review of the River and Creek Corridor Development Ordinance to verify whether the specific setback/buffer requirements are appropriate.

CDD4H - Work to minimize the impact of erosion, grading, and filling on sensitive habitat areas by designing and building sites to drain efficiently. Continue to require review and approval of erosion control and grading plans from all development projects on river and creek corridors prior to the issuance of a grading permit.

CDD4I - Evaluate as necessary the potential impact of all new uses and work with local and regional agencies on implementation strategies to reduce or mitigate the impact of new development along river, creek, and riparian environments, as appropriate.

CDD4J - Require new development projects to consider resource conservation, environmental sensitivity, and cultural impacts, as appropriate and necessary in project design and construction.

CDD4K - Continue to identify opportunity areas along the river and creek corridors and strive to incorporate specific uses to create a public realm by promoting safe pedestrian and bicycle access, establishing new trail connections, and providing parks and recreational opportunities, visitor-friendly amenities, visual resources, and ample public access to the river without compromising on the security and privacy of adjacent residences.

CDD4L - Encourage new developments along the river to incorporate the natural environment as a part of the design and as a key feature to guide the scale, design, and intensity of the development, thereby optimizing visual and physical access to the river and creek corridors, which would be subject to public safety requirements as required.

Goal CDD5: Provide functional and attractive stormwater detention and retention basin facilities that will also allow recreational uses.

CDD5A - Consider the development of a stormwater detention masterplan, and development standards that would:

- Identify adequate locations for feasible regional and neighborhood detention and related facilities, which also may consider the use of parks and public right-of-way for stormwater detention.

- Ensure that public facilities and infrastructure are designed pursuant to approved State regulatory requirements.

- Establish design and construction standards, landscape, and maintenance guidelines.

- Identify opportunities for recreation as a combined use with detention facilities.

- Facilitate groundwater recharge.

CDD5B - Limit the development of retention basins to those circumstances where detention facilities are not hydrologically feasible or where it can be determined that the proposed retention basin will be an asset to the development and the community.

CDD5C - Detention basins should be located out of view from streets and other public areas. Where this is not desirable or feasible, basins must be designed, in the opinion of the City, to be an aesthetic enhancement and, as appropriate, a recreational amenity for the development with minimal depth, natural shapes and varying slopes, and attractive landscaping.

CDD5D - Design larger regional or neighborhood-serving detention basins to accommodate active recreational uses that complement the basin's bioswales, rain gardens, and permeable pavement.

Hillsides

Development, as a result of open-space policies established in 1970, has established a well-defined pattern of open space in and around the City. These areas, generally floodplains and steep hillsides, have remained largely undeveloped and thus provide an important network of interconnected "greenways" throughout the community. Hillside areas also provide further relief from urbanization and lend a natural feel to the community. In order to effectively minimize erosion and the visual impacts which can result from excessive grading in steeper hillside areas, careful consideration should be given to the design and construction of projects on sites containing average slopes of eight percent or more. The following policies are designed to ensure that the visual and ecological integrity of areas containing steeper slopes and important ridges is maintained. Some degree of vegetation modification may be necessary for wildland fire management.

Goal CDD6: Retain the natural appearance of the steep hillside areas and ridge lines.

CDD6A - Strive to protect the visual integrity of prominent ridge lines (see figure CDD-4) and avoid alterations to the topography that can be viewed from vista points. The City should consider the use of tools such as the following to avoid or minimize development impacts:

- Purchase of land (public or public-private partnerships).
- Creating conservation easements or similar measures.
- Utilizing design measures such as building height limitations, increased ridge-line setbacks, and/or standards for use of appropriate building forms, colors, and materials that blend into the surroundings.

CDD6B - Consider establishing hillside development standards to:

- Decrease allowable residential densities with an increase in site slope.
- Limit excessive grading on slopes.
- Encourage the use of multiple levels where appropriate, so buildings are set into and stepped down the hill.
- Minimize deforestation and disturbance of native vegetation outside the approved building footprint and street and utility corridors, while considering the Local Hazard Mitigation Plan (LHMP) for wildland fire protection.

CDD6C - Review and amend the City's Grading Ordinance as necessary to ensure that adequate requirements are included for submission of detailed grading and revegetation plans for areas where slope grading is visible from major streets, the Sacramento River, and/or stream corridors.

CDD6D - Consider establishing alternative road standards in hillside developments to align with the existing topography of natural ridges and valleys, by reducing or splitting road sections and considering parking bays to avoid excessive grading.

Built Environment

Care must be taken to ensure that the man-made environment complements the City's natural environment. Further, the various elements that comprise the man-made environment influence how the City looks and the image it presents, as well as how various land uses interact with one another. This section addresses a variety of factors that influence the image of the City from an urban perspective, including streets, connections, building heights and setbacks, signs, utilities, and downtown development. It also addresses the importance of maintaining compatibility of adjacent land uses. A key element is to provide a flexible means of achieving a balance between the natural and manmade environment and the costs associated with ensuring distinctive development.

Goal CDD7: Promote the development of a cohesive, well-defined city.

CDD7A - Strive to maintain well-defined community edges using open space buffers, greenbelts, agricultural lands, stream corridors, and other natural features. Where this is not feasible, utilize City-wide "gateway" treatments through signage and/or identifiable landscape features or other aesthetic elements.

CDD7B - Link special community facilities, parks, and other uses to and through Downtown by establishing clear, accessible, convenient, and attractive pedestrian, bike, and automobile connections where appropriate and feasible.

CDD7C - Strive to develop and adopt a citywide Directional Sign Program by identifying and establishing districts and neighborhoods; incorporating landscape, banners, flags, art, and displays to enhance visual attractiveness and historical and cultural significance that would help define destinations and meet current and future needs of the diverse population in the community.

CDD7D - Consider graphic standards and artistic directional signage for local streets, plazas, the river, trails, community centers, and other landmarks focused on local identity, aesthetics, and visibility to establish a high-quality, appropriate, and attractive brand identity and design as a key strategy to enhance the quality of life, the community, and promote tourism and economic development.

CDD7E - Collaborate with public and private agencies and organizations, as appropriate, to create distinct, fundamental, and enhanced navigational elements that resonate with the community's identity and vision.

CDD7F - Work with property owners to establish Downtown "gateway" treatments at appropriate locations, and enhance the livability and character of Downtown by establishing a distinct theme for community wayfinding through inclusive and identifiable navigational elements, map kiosks, and pedestrian and off-street signs.

Historic Preservation

The types of cultural resources that meet the definition of historical resources generally consist of districts, sites, buildings, structures, and objects that are significant for their traditional, cultural, and/or historical associations. The City, in partnership with local organizations, has taken steps in the past to reduce the potential impact, demolition, or alteration of historically recognized architectural resources, through the creation of a "candidate list" of potentially historic structures, the majority of which are located Downtown and in west Redding. This section of the General Plan recognizes the importance of historic preservation, and encourages rehabilitation and preservation through education and the implementation of programs that preserve and promote the inherent character of the local community.

Goal CDD8: Identify and preserve historic resources and structures that reflect Redding's history.

CDD8A - The City, in partnership with appropriate community partners and organizations, should work to encourage the preservation and rehabilitation of historically and architecturally significant districts, buildings, and structures. Utilize and advertise, as appropriate, the availability of the state Mills Act Program, which provides incentives to private property owners to preserve and maintain historic properties.

CDD8B - Consider strengthening historic preservation planning by amending the Historic/Architectural Preservation Ordinance, which will lead to the identification and preservation of historically significant structures and districts and guide new development.

CDD8C - As opportunities allow, collaborate with other public, private, and non-profit agencies to document architecturally and culturally significant buildings and structures, including expanding/refining the City's Candidate List of Historic Structures to better understand the historic nature of these properties.

CDD8D - Consult and collaborate with other public, private, and non-profit agencies, as staff and funding resources allow, to educate property owners on the importance of preservation through workshops, events, public art projects, and curated architectural heritage site tours.

CDD8E – Consider utilizing designated historical buildings and cultural resources in the City and/or the placement of identifying plaques or other tools, as appropriate, to educate residents and visitors about Redding's historic resources.

CDD8F – Work with local organizations to create incentives to encourage the protection and preservation of historic buildings and structures to prevent, to the extent feasible, their demolition.

CDD8G – Consider the development and application of a Neighborhood Conservation Overlay District or similar mechanism to protect identified historic districts and ensure that new developments share similar characteristics, to minimize adverse effects that occur through unsuitable development.

CDD8H - Strive to ensure that new developments reflect the existing physical characteristics, building design, streetscape, open space requirements, and urban form that preserve and contribute to the overall character and livability of the established neighborhood.

CDD8I - Encourage "adaptive reuse" of historic structures in instances where the original or existing use is proposed to be changed. Consider utilizing the provisions of the California Building Code related to historic buildings where appropriate to facilitate the conversion of use.

Goal CDD9: Preserve existing community character and fabric and promote the development of livable and cohesive neighborhoods and districts.

CDD9A - Encourage new residential, office, and commercial development to reflect enduring, and interesting, and attractive designs, and provide community amenities, as appropriate.

CDD9B - Consider adopting development guidelines that address, among other things:

- Ensuring that buildings are designed to be attractive assets to the neighborhood and City and exhibit attributes of quality and permanence, minimize the use of blank, unarticulated walls, and include interesting architectural features and details.

- Pedestrian oriented designs and amenities are provided that include, among other items, appropriate scale lighting, benches, landscape, and shade trees.

- Incorporates Crime prevention through Environmental Design (CPTED) principles, as appropriate.

Residential Neighborhoods - Infill Development

The density and location of residential land uses are key to effectively implementing the compact urban form and transportation alternatives. Redding is approximately sixty-one square miles in the area and its sprawling development results in a comparatively low urban density of 1,569 people per square mile. The low urban density has an adverse effect on the cost to maintain the City's infrastructure and services, increasing emergency service response times, and leading to an increased dependence on automobiles and therefore higher rates of pollution than would occur with a more compact urban form. Prioritizing urban infill development to vacant and underutilized parcels in the urban area allows the City to take advantage of the readily available infrastructure and provide opportunities for investment in communities that may be underserved in terms of access to healthy food, affordable housing, jobs, or commerce. This section is aimed at promoting sustainable development concepts that prioritize the development of infill sites and reduce sprawl and the challenges that come with it. As an implementation strategy of this section, the City or individual property owners can initiate rezoning of residential properties to apply parcel-specific densities within the density ranges already established in the General Plan Diagram if necessary to accommodate development and redevelopment plans.

Goal CDD10: Establish a pattern of infill development that:

- Links open space areas to each other and to developed areas such as parks, schools, residences, and commercial developments.

- Promotes mixed-use developments.

- Promotes adaptive reuse of vacant buildings.

- Places of employment, shopping, and other activity centers in or near residential neighborhoods.

- Encourages walking, bicycling, and other public transit use by promoting safe and convenient choices for all.

CDD10A - Establish standards for infill projects in existing residential neighborhoods that respect existing neighborhood scale and character as funding allows.

CDD10B - Consider establishing zoning standards, design guidelines, incentives, and an expedited development and building permit application and review process to encourage infill development on vacant and underutilized parcels in the City.

CDD10C - Consider establishing incentives for medium- to high-density, mixed-use developments, where appropriate, with emphasis on Downtown and in the "Mixed- Use Neighborhood Overlay" Districts. Review and amend as necessary the Mixed-Use Neighborhood Overlay zoning district to ensure that it serves to facilitate and incentivize the development of new mixed- use neighborhoods to the extent feasible.

CDD10D - Encourage development in the City to include inviting, attractive, accessible, and walkable urban mixed-use neighborhoods combining residential, commercial, recreational, open space, and employment to maximize the use of underused urban lots.

CDD10E - Consider a program to identify and define the vision of infill priority areas, urban nodes, the Opportunity Areas depicted in Figure CDD-5, and the Focus Areas identified in this General Plan, and establish specific development goals and guidelines. Strive to ensure that developers of new residential, commercial, and mixed-use developments in these infill priority areas have sufficient guidance to understand the goals of each area.

CDD10F - When determining the appropriate mix and form of residential, commercial, and recreational uses in infill priority areas, consider the neighborhood's historical, cultural, and physical characteristics; the community's needs; parcel depth and size; market and policy demand; and the need to revitalize space, uses, and other physical characteristics.

CDD10G - Facilitate the development of residential uses in conjunction with a mixture of local-serving retail and service uses at appropriate locations by allowing small neighborhood-serving stores to be established in all residential districts where they will not unduly impact existing neighborhoods, either by establishing appropriate standards or by requiring a discretionary permit.

CDD10H - Endeavor to enhance the quality of life through the development of Third Places projects (social surrounding separate from home and work), and programs combining open space, recreation, entertainment, and shopping, that residents actively seek outside of home and work.

CDD10I - Provide safe and comprehensive transportation facilities with appropriate accessibility standards, consistent with approved transit plans and policies. Pursue incorporation of bicycle and pedestrian routes, public transit stops, and bus shelters into the design of new developments and redevelopment of older projects to help residents access services, commerce, employment, education, and recreation consistent with approved transit plans and policies.

Goal CDD11: Strive to ensure that new residential development is appropriately located and designed and can accommodate a mixture of housing types and uses.

CDD11A - Encourage developers to create new residential developments in infill priority areas that are available to a broad segment of the community. The developments should be pedestrian and bicycle friendly, to make efficient use of available infrastructure and at densities that will help facilitate the provision and use of public transit where it is available.

CDD11B - Maximum residential densities within a given range of the land use classifications of this General Plan are appropriate for projects that demonstrate superior design features and amenities and/or the development is an affordable housing project that is supported by financial aid or other assistance provided by the City of Redding.

CDD11C - Consider developing form-based codes specific to infill priority areas and developing small lot zoning standards for existing lots below the City's minimum lot size to facilitate residential development in infill priority areas.

CDD11D - Explore options for incentivizing parcel assemblage in infill priority areas to support residential and mixed-use developments.

CDD11E – Facilitate, to the extent feasible, the construction of new affordable housing units that are within walking distance of transit, everyday services, schools, and employment centers.

CDD11F - Consider establishing residential design standards that address natural features, visibility of structures, variations in building design, garage placement, usable open space, access, and the relationship to surrounding uses. Site constraints may dictate that the maximum number of residential dwelling units allowed by the General Plan classification for a given parcel of land may not be realized.

CDD11G - Continue to allow residential developments to include a mix of residential densities and dwelling types, provided that the proposed development is in scale with the neighborhood and that the total dwelling unit count is consistent with the applicable General Plan density range depicted on the General Plan Diagram.

CDD11H - Strive to create diverse housing options for all income levels in infill priority areas, by encouraging commercial centers to combine residential uses and increase the site potential.

CDD11I - Consider amending the Zoning Ordinance as may be necessary to provide opportunities for such uses as daycare facilities, places of worship, residential care facilities for the elderly, public and private schools, small grocery stores, and other neighborhood-serving uses to be established in appropriate residential neighborhoods, provided that they are located and designed to be compatible with the neighborhood.

CDD11J - Encourage the construction of Accessory Dwelling Units and Junior Accessory Dwelling Units in single-family residential districts, consistent with State law, to increase the housing stock and provide more affordable housing options in support of the goals of the Housing Element.

CDD11K - Provide opportunities to develop multiple-family housing throughout the community, and especially near arterial streets, Downtown, major commercial areas, and neighborhood commercial areas.

Neighborhood Preservation and Enhancement

As part of its efforts to foster community pride and strengthen community identity, the City intends to support measures that improve and maintain healthy neighborhoods. Signs of a healthy neighborhood include clean streets, low crime rates, attractive buildings and yards, and active and responsible residents. While a city government cannot create such a neighborhood by itself, it can implement policies that establish the framework necessary for neighborhoods to develop and improve. The policies listed below are intended to aid the efforts of citizens seeking to enhance the quality of life in their neighborhoods.

Goal CDD11: Develop new neighborhoods that are attractive, healthy, safe, and well-maintained.

CDD12A - Establish design standards for new development that will create more livable and aesthetically-pleasing neighborhoods, as funding allows. Promote compatibility between land uses by minimizing impacts to privacy, views, and noise and protecting against intrusions of non-neighborhood traffic.

CDD12B - Where topography, creeks, or other natural features cannot be used, utilize the circulation system and the pedestrian and bicycle pathway systems and/or other appropriate transition features as important structural elements to define neighborhoods and districts.

CDD12C - Support efforts to involve neighborhoods to address safety and maintenance issues and foster a sense of identity and pride by encouraging the following types of activities:

- Volunteer services.
- Public parks and facilities renovations.
- Neighborhood clean-up programs.
- Neighborhood activity and safety notification programs.
- Neighborhood watch programs.
- Social interaction.

CDD12D - Promote stronger neighborhood/school partnerships, including joint use of City and school facilities wherever feasible.

CDD12E - Pursue the establishment of priorities for infrastructure improvements, based in part on neighborhood needs for those areas that can most benefit from such improvements given documented infrastructure issues, as funding becomes available.

CDD12F - New developments should consider their contextual setting, ensuring appropriate transition in scale, character, and aesthetics of existing neighborhoods and their surroundings.

CDD12G - New development projects should provide gradual transitions between multiple-family and single-family districts and between commercial and residential districts, by considering appropriate techniques such as:

- Density.
- Intensity transitions.
- Landscape buffers.
- Trails.
- Building placement.
- Height transitions.

CDD12H - Strive to ensure adequate street and landscape maintenance, law enforcement, code enforcement, litter, and graffiti control to provide safe and attractive neighborhoods for residents.

CDD12I - Where appropriate, endeavor to establish effective community engagement and targeted strategies such as in-person and virtual meetings, online forums, and surveys to educate and engage community members to communicate their conditions or concerns and be active participants in the decision-making process. Such meetings could address such topics as:

- Mobility and literacy challenges.
- Language barriers.
- Access to technology.
- Limitations on availability due to family and work responsibilities.

Commercial Land Use Guidelines

One of the primary goals of the General Plan is to create a balanced economic base that will provide a full range of employment opportunities for Redding's residents. In order to meet this goal, an appropriate amount of commercial and industrial land should be designated in a variety of locations, that are sufficiently close to be well-connected to residential neighborhoods that can

attract and accommodate the widest range of potential businesses. The industrial component is addressed in the Economic Development Element of this General Plan.

Within the City's economic development strategy, a careful balance also needs to be maintained between attracting new businesses and protecting the economic vitality of other parts of Redding, particularly the Downtown area. Significant effort and investment have gone into and will continue to be put into revitalizing the heart of the City. Therefore, it is essential that other land use decisions reinforce that objective.

In addition to providing employment opportunities and tax revenues, commercial and industrial land uses can also have a significant impact on the appearance and image of a community. Careful planning is necessary to ensure that unsightly strip development patterns and visual clutter, such as can occur with inappropriate or excessive signage, are not perpetuated. A contextually-appropriate mix of primary businesses and uses, incorporation of plazas, and gathering places within nonresidential development projects can be used to provide additional opportunities for individuals to interact and foster a greater sense of community. The appearance of nonresidential development projects can also be improved through the implementation of basic design guidelines. All of these actions combined will contribute to the successful integration of commercial and industrial land uses and the overall goal of improving the attractiveness of the City.

Goal CDD13: Designate retail commercial lands in appropriate locations to meet the present and future diverse needs of Redding's residents and visitors and to maintain the City's economic vitality.

CDD13A - Strive to ensure commercial lands identified for future development meet the existing and projected market demand for local, community, and regional commercial activity. Consider requiring the following information be provided with proposals to amend the General Plan Diagram:

- Proposed amendments to establish additional retail commercial sites, not initiated by the Planning Commission or the City Council, will be considered appropriate when it is demonstrated that there is a need for such site(s) within a 5-year time horizon. All applicants seeking such amendment to the General Plan Diagram generally of two acres or larger in area should provide a detailed analysis that demonstrates that the approval of the amendment will help to implement goals and policies of the General Plan in two or more of the following areas:

    - Provides needed neighborhood services to an otherwise underserved geographic area in a manner that complements adjacent existing or planned development.

    - Accommodates a mix of uses in addition to commercial use at an appropriate location as addressed by the policies of this General Plan.

    - Provides opportunities for regional commercial development at an appropriate location and scale in accordance with the policies of this General Plan.

The parameters of the analysis shall be determined by the Director of Development Services based on the characteristics of each site. Demonstrating only that a particular location would be economically viable for an intended use will not constitute, in and of itself, sufficient grounds for approval of a General Plan amendment.

- Applications to amend the classification of an existing site intended to provide neighborhood services to another use should demonstrate, through an appropriate analysis as determined by the Director of Development Services, that the proposed amendment will further the goals and policies of the General Plan related to future housing and neighborhood or community-level retail and related services.

CDD13B - Strive to provide sufficient opportunity to satisfy the retail market demand by allowing a range of site sizes and locations, while ensuring, to the extent feasible, that reclassification of land for commercial uses will not:

- Conflict with policies that encourage multiple-family uses in close proximity to retail and service uses and along transportation corridors.

- Conflict with policies of the Parks, Trails, and Open Space Master Plan.

- Reduce the supply of multiple-family lands as necessary to satisfy the long-term housing needs for very low-, low-, and moderate-income households in the community.

CDD13C - Encourage redevelopment of existing commercial properties for regional-scale commercial uses by considering General Plan amendments on sites less than 15 acres, where redevelopment will result in the following, as appropriate:

- Development that conforms to current development standards and criteria by eliminating most, if not all, nonconforming site conditions on an existing site or center.
- The assembly of predominantly developed commercial properties, the redevelopment of which will result in a more efficient land use pattern and contemporary site design, such as the use of common driveways, parking fields, landscape, and public areas within the development.

- Unique site designs, such as multiple stories, a mix of uses, unique architecture, and/or similar elements, are encouraged to achieve the intent of this policy, which includes the potential for the development of regional commercial uses that will result in significant site upgrades.

- The use is compatible with surrounding land uses.

- The use does not eliminate potential neighborhood shopping opportunities that reduce vehicle trips or provide neighborhood services and identity.

CDD13D - Consider, among other factors, the following site characteristics when designating lands for retail commercial uses:

- Location on an arterial street, preferably at street intersections.

- Provision of sufficient depth that will allow a cohesive/clustered development style instead of separate uses developed in a linear fashion along the street.

- Location within, or adjacent to, existing or planned concentrations of population.

CDD13E - Consider requiring overall development plans for all shopping centers and regional centers be approved before allowing the development of individual uses within a planned center. It is desirable that site and building design reflect excellence and quality and be compatible with surrounding development.

CDD13F - Require regional centers (i.e., those regional commercial districts that include multiple main tenants) include a mix of uses such as recreation, specialty retail, restaurants, offices, accommodations for transit services, and public uses, where appropriate.

Goal CDD14: Encourage project development that is compatible with surrounding properties, and which improves the image of the City.

CDD14A - Consider establishing design and performance standards for commercial development to ensure that building and site design are vibrant, convenient, attractive, and are compatible with the surroundings in terms of scale, mass, building patterns, building details, location, and visibility of parking, signage, and landscape and enhance views from major streets and other public areas.

CDD14B - Consider requiring that the design of large commercial projects, shopping centers, and regional scale developments incorporate plazas, courtyards, and other outdoor gathering places, pedestrian connections and appropriate amenities through parking lots, and pedestrian connections to adjacent residential neighborhoods.
CDD14C - Strive to facilitate and promote the development of commercial mixed-use centers at strategic locations that are walkable and/or bikeable and well connected by transit to enhance community access.

CDD14D - Consider designating commercial-zoned land as mixed-use, provided it would not change or impact the existing primary uses, to facilitate the following:

- Provide community facilities for residents with diverse needs.

- Enhance the existing use.

- Provide pedestrian and bicycle connections.

- Provide housing opportunities.

CDD14E - Consider creating mixed-use codes for use in commercial-use-dominated areas that allow for residential units, business support uses, public and private amenities, child-care,

restaurants and retail goods, and services that serve the employees of these businesses and the others nearby.

CDD14F - Consider a neighborhood-informed approach in determining the appropriate mix and form of commercial uses in infill priority areas. Encourage existing commercial centers to add residential and other appropriate uses, taking advantage of available land, services, and parking to enhance community needs.

CDD14G - As resources permit, review the Municipal Code's nonresidential parking requirements to ensure that an adequate number of spaces are provided for each use without requiring more spaces than projected to be needed. Consider amending the Municipal Code to establish the maximum number of spaces that can be provided for each use so as to avoid construction of unneeded spaces and to improve parking lot shade from trees and/or photovoltaic structures to reduce heat impacts.

Signs

Signs play a vital role in identifying business locations for the traveling public. However, excess or poorly designed and placed signs can detract significantly from the community. Expensive, well-designed signs can be rendered useless if there is too much visual clutter that drowns out the functionality of individual signs, or if a sign next door blocks its viewability. Typically, the cure to this has been to install larger, more powerful signs to compete for the motorists' eyes. The end results are sign clutter, damage to the building façade, loss of community, wasted advertising effort, and, potentially, greater cost for businesses.

Goal CDD15: Work to reduce sign clutter along the City's arterial streets while respecting businesses' need to identify their location to the traveling public.

CDD15A - Endeavor to reduce the visual clutter and promote a continuous, distinctive, and well-coordinated master sign program in select commercial corridors.

CDD15B - Consider requiring that new developments should include landscape and signage plans along with other project details during the pre-application and/or formal application process for review.

CDD15C - The design and size of signs in established neighborhoods should fit within the architectural order of the façade and do not obscure or damage the integrity of the building.

Streets

The memories or impressions that one has of a city are often based on what is viewed from inside a car. Because streets and their immediate surroundings (streetscapes) are important to visitors and residents, it is important to recognize their value beyond just transportation and vehicle safety. Streets shape the community in profound ways and create vital links among neighborhoods and between commercial and other nonresidential areas. The pattern of streets in a city, their width and

design elements—like sidewalks, curbs, and landscape—are an integral part of creating an attractive and desirable community.

Arterial streets should be constructed with sufficient visual amenities to improve the experience of both vehicle passengers and pedestrians. Generally, this requires the use of landscape to break up and soften the street scene by utilizing landscaped medians and sidewalks surrounded by appropriate landscape and an established tree canopy.

Goal CDD16: Improve the visual attractiveness of the City's arterial and collector streets; encourage walking, biking, and public transit use, and make these transportation options safe and convenient choices for all.

CDD16A - Street tree- planting should be a unifying visual element along the streets; consider establishing a program to retrofit existing arterial streets to include median and street-side landscape.

CDD16B - Obtain sufficient right-of-way for sidewalks, street-side and median landscape, and necessary utilities along new arterial and collector streets with development approval. Install such improvements with the construction of the streets where appropriate.

CDD16C - Support neighborhood and community-initiated landscape processes to facilitate the development of street-side landscape and pedestrian facility improvements.

CDD16D - Enhance efforts to screen unattractive or distracting elements with landscape to alter the effect of large retaining walls, large parking lots, bleak surfaces, and unattractive views by considering appropriate amendments to the Zoning Ordinance and the development review process.

CDD16E - Consider adopting and implementing a Master Street Plan, identifying the hierarchy of streets and appropriate streetscape elements that also considers the requirements of emergency response personnel. A Master Plan may include such items as:

- Traffic calming features and design treatment (e.g., bike boxes, barriers, distinct pavement features, delineated markers and reflective paint, medians, etc.).
- Lighting layout (e.g., identify any needed changes to current street light spacing standards and equipment to ensure adequate sidewalk/pedestrian area lighting, use of pedestrian scale-lighting techniques, etc.).
- Height, spacing, and scale of street fixtures and furniture.
- Width and paving materials for sidewalks.
- Signage and public art.
- Ground-level businesses to support.

- Street connectivity.

- Landscape and street trees with root barriers, in compliance with a comprehensive Tree Plan.

CDD16F - Consider establishing a comprehensive landscape and vegetation management program that incorporates the City's urban landscape and open space lands to enhance the landscape aesthetic of the City and more effectively protects the community from wildfire hazards. The program could be responsible for the following and additional activities as may be appropriate:

- Overseeing the City's street tree program, including recommendations on appropriate trees and long-term maintenance.

- Reviewing and approval of landscape plans developed in conjunction with private development activities such as commercial and office developments, residential planned developments, proposed landscape maintenance districts, stormwater detention basins, and similar developments and facilities.

- Reviewing and considering, in concert with appropriate public safety agencies, vegetation modifications and long-term management plans in Redding's wildland-urban interface areas to protect new and existing developments from wildfire.

- Identifying and seeking local, State, and federal funds as well as grants and other financial resources to accomplish the above activities.

Residential Streets

Residential streets offer their own unique set of challenges to enhance visual quality. There should be variety in the streets, both in width and design. Short streets with low traffic volumes should be relatively narrow, perhaps with parking restricted to one side only. Higher-level residential streets (also known as "collector streets"), while wider, should not have excessive width; visual interest for both vehicle passengers and pedestrians can be enhanced through the use of detached sidewalks (or "parkways"). Parkways should be of sufficient width to allow for tree planting as well as utility trenches if required.

The width of a street's paving often correlates with how fast a driver will feel safe to drive. Streets that are unnecessarily wide tend to encourage faster travel. Since slower traffic is desirable in residential areas, allowing narrower street widths and/or installing appropriate "traffic-calming" mechanisms can help accomplish that goal.

Goal CDD17: Provide residential streets that are designed to reduce vehicle speed, that encourage pedestrian and bicycle use, and that are aesthetically pleasing.

CDD17A - Allow a variety of residential street widths and designs to be incorporated into new residential developments based on the function of the various streets. Pavement width should

generally be limited to the minimum necessary to adequately meet circulation demands and emergency vehicle access.

CDD17B - Encourage new neighborhoods to incorporate detached sidewalks and to establish landscaped "parkways" between curb and sidewalk. Continuous and consistent tree planting to form canopy closure is encouraged.

CDD17C - To minimize speed and cut-through traffic, consider the use of visual design techniques such as:

- Narrowing at intersections by creating bulb-outs and median refuges.
- Diversion of traffic.
- Landscaping and neighborhood greenways.
- Utilizing pedestrian-level streetlights.
- Modifying straight, long, and wide sections.

CDD17D - To create safer residential streets for pedestrians and cyclists, consider utilizing safety criteria such as the following measures while also considering the needs of emergency response agencies:

- Pedestrian-scale shade trees.
- Attractive streetscape.
- Distinct paved surfaces.
- Lighting.
- Street furniture.
- Street crossings.
- Traffic calming features.

CDD17E - As appropriate, insulate residential areas through intense landscaping, parks or smaller open spaces, sound walls, and other screening devices from the noise, pollution, and physical danger of heavy traffic in concert with measures identified in the Noise Element.

Goal CDD18: Reduce the visual impact of utilities and communication facilities.

CDD18A - Place new electric distribution lines underground in new development where feasible.

CDD18B - Place existing overhead distribution lines underground upon development of the abutting property where feasible.

CDD18C - Consider establishing a mechanism to systematically replace underground distribution lines in existing neighborhoods and commercial areas as funding sources are identified.

CDD18D - The design and location of pump/lift stations, electric substations, backflow prevention devices, traffic controllers, electric boxes, and similar utility facilities should be designed to minimize noise and visual impacts to the community.

Community Building Height and the Relationship Between Buildings and Streets

Building Heights

The location of tall buildings plays an important role in establishing the basic urban form of the community. Tall buildings can define important geographical areas, such as its Downtown, and can be a catalyst for redevelopment. Significant job and housing opportunities also can result from the development of more intensive buildings. Properly designed and placed, tall buildings can lead to an increase in vitality in an area. To accomplish this, the massing of taller buildings should be integrated into surrounding development; they should create an elegant rather than a bulky form; and they should make a positive contribution to the public realm, urban form, and skyline.

The General Plan seeks to concentrate the tallest buildings in the Downtown area to accomplish a number of critical community objectives. However, it also recognizes that there are important commercial corridors where buildings taller than the typical four-story limit are desired to provide:

- Visitor services, such as hotels/motels.
- Residential opportunities.
- Mixed-use opportunities.
- A catalyst for redevelopment of aging commercial districts.
- Opportunities for new convention facilities.

The Downtown Focus Area, Hilltop/Dana Drive Focus Area, and the North Market Street Focus Area all have unique values that can be enhanced by “mid-rise” and “high-rise” buildings as these areas redevelop over time. Figure CDD-6, Community Building Heights, in conjunction with the above-noted Focus Area descriptions, policies, and maps, establishes the appropriate locations for these buildings in Redding. For purposes of this General Plan, “mid-rise” refers to buildings with habitable floors up to 75 feet above the ground. This height will typically accommodate six-story buildings, depending on their design.

Considerable flexibility should be provided for the design of roof elements, mechanical penthouses, and other elements to exceed that height and add visual interest to the buildings. No

height limit should be established for downtown high-rise buildings. Additionally, increased heights may be appropriate for projects within the Stillwater Business Park, consistent with the goals and policies of the City's Economic Development Element.

Street Setbacks

The height of a building and the distance that it is set back from the street play an important role in the overall character of a community. For instance, the presence of tall buildings can draw attention to certain districts in the City as viewed from major thoroughfares. Buildings constructed close to the street can contribute to establishing an urban feel in Downtown or, with greater setbacks, a suburban feel to areas outside of Downtown. For Redding, taller buildings with minimal setbacks should be encouraged Downtown to distinguish it from other commercial districts and to help provide an urban "heart" for the City. Major thoroughfares will generally have larger setbacks; with the buildings shorter in stature. Minimal setbacks may also be appropriate for new mixed-use districts that are contemplated by this Plan.

Goal CDD19: Establish building setbacks and heights that reflect the role and character of the various districts of the City.

CDD19A - Consider establishing appropriate standards for buildings, massing, height, and setbacks for residential and commercial developments on arterial and collector streets that will define and reinforce the character of development districts in the city, while respecting cultural and historical landmarks and places of interest.

CDD19B - Utilize Figure CDD-6, in conjunction with the appropriate Focus Area maps and policies, to establish the appropriate locations for "mid-rise" and "high-rise" buildings in the community. High-rise buildings are only appropriate in the Downtown core area.

CDD19C - Consider establishing appropriate design standards and criteria for mid-rise and high-rise buildings. The standards and criteria should address, among other items, the following:

- Setbacks, step-backs, architectural design, massing, scale, form, site design, and transparency.
- Definition and support of adjacent streets and open spaces.
- Integration with other buildings and open space on the block or in the area.
- Provision of high-quality pedestrian amenities.
- Recognition of the importance and role of the three main parts of tall buildings: the base, middle (shaft), and top.
- Application of Building Code and other appropriate safety requirements.

Public Art

Art expresses the social and cultural history and character of the community and enlivens the community's vision. It creates a stronger public identity and boosts the economy and tourism by attracting and engaging visitors. The City recognizes the importance of public art and, over the years, has commissioned artists locally and from across the world to create masterpieces that have become Redding identity. The Sundial Bridge across the Sacramento River is a major part of Redding's identity today and a great example of how infrastructure can be conceived as public art. This section elaborates on the need to attract the creative community by incorporating art into building and neighborhood design and engaging the community through education and outreach on the importance of public art.

Goal CDD20: Enliven the public domain by promoting excellence in public art as a means of transforming public spaces, providing context and relevance, and contributing to community interest and pride.

CDD20A - Utilize public art to create identifiable districts, places, and special locations in the public domain by:

- Encouraging the integration of art into the architecture of municipal structures, facilities, parks, open spaces, and other public areas.

- Involving artists and specialized design professionals in the design, implementation, and integration of art in public projects.

CDD20B - Continue to identify opportunities for public art in neighborhoods, specifically Downtown, and reinforce place-keeping goals by commissioning artwork that is themed, visually distinctive, and associated with the identity, history, and diversity of the city and specific neighborhoods.

CDD20C - Promote public art as an urban beautification effort, engaging and partnering with artists, design professionals, galleries, museums, architects, art professionals, urban planners, universities, community members, businesses, and other stakeholders in prioritizing and working on art projects in the city as funding allows.

CDD20D - Strive to attract and encourage the creative community to contribute to the City's cultural and economic enhancement by developing flexible live-work spaces, incentivizing and funding art programs, and commissioning public art that reinforces the City's identity.

CDD20E - Consider allocating funding for public art and providing incentives for all businesses and private developments that install public art or incorporate custom artistic elements in their design.

CDD20F - Involve the community through outreach activities and education about the importance of public art and specific art project initiatives, as appropriate.

CDD20G - Employ public art as a mechanism to create a more walkable and bikeable City. Support art installations and performance-based events in areas of increased pedestrian and bicycle traffic.

CDD20H - Consider blank façades, light poles, medians, utility boxes, mosaic fountains, railings, fire hydrants, parking strips, and underpasses along arterials and automobile-dominated areas for large, prominent public art.

CDD20I - Public art should not be considered as a substitute for including appropriate design features in new development. For existing developments, consider blank façades, light poles, medians, utility boxes, mosaic fountains, railings, fire hydrants, parking strips, and underpasses along arterials and automobile-dominated areas for large, prominent public art.

Administration and Implementation

The General Plan Diagram identifies the general distribution of various land use classifications throughout the Planning Area. Because of the scale, it may be difficult to determine the precise location of boundaries between map land use classifications and/or the actual extent of hazard areas associated with steep slopes or flooding. In some instances, more than one land use classification may be applied to a parcel of land, requiring that the appropriate mix of uses and allowable density be determined on an individual basis. In order to streamline minor interpretations of the General Plan Diagram and reduce the need for General Plan amendments in such circumstances, the City of Redding has established the following policies for land use administration procedures.

Goal CDD20: Ensure proper and efficient administration of the General Plan Diagram.

CDD21A - Permit the Director, Board of Administrative Review, or Planning Commission to reconcile land use classification boundaries to coincide with legal parcel boundaries and actual flood and slope areas provided that land use compatibility is maintained, that the integrity of each land use district is maintained and that there will be no adverse impacts of such boundary adjustment. Such actions will not constitute a General Plan amendment.

CDD21B - Allow the Planning Commission to determine the appropriate mix and density of development on parcels shown on the General Plan Diagram as divided into two or more land use classifications based on policies of the General Plan. Such actions will not constitute a General Plan amendment.

A routine review of the General Plan is critical if the City is to ensure that the Plan continues to be consistent with community values, social and economic trends, and changing technology. Further, a routine review of the Plan can identify how well the City implements the policies of the Plan. The following policy addresses a review of the General Plan.

Goal CDD22: Provide for ongoing implementation of the General Plan.

CDD22A - Conduct periodic reviews of the General Plan's goals, policies, and Diagram, as appropriate, to meet the General Plan Annual Progress Requirements of the Government Code Section 65400 that requires staff to "investigate and make recommendations to the legislative body regarding reasonable and practical means for implementing the General Plan or an element of the General Plan, to serve as an effective guide for orderly growth and development, preservation and conservation of open-space land and natural resources, and the efficient expenditure of public funds relating to the subjects addressed in the General Plan." The Planning Commission and the City Council shall receive a staff update on the Implementation of the General Plan periodically, principally focusing on the following:

- Actions are undertaken in the previous year to carry out the implementation programs of the Plan.

- Satisfy the requirements of Public Resources Code 21081.6 for a mitigating monitoring program in addition to the General Plan Annual Progress Report requirements of the Government Code Section 65400.

- A briefing on new and continuing funding sources that are available to help implement the General Plan, and the steps the staff is taking to pursue them.

Focus Areas

Each of the identified Focus Areas (Figures CDD-7 through CDD-16) is discussed separately in this section. It shows how the existing character of each area has been influenced by previous development and how new development can be channeled to resolve existing problems or capitalize on opportunities. City policies that direct future development and capital improvements in each area are presented where appropriate. Policies discussed within the text of each Focus Area are illustrated by accompanying diagrams.

Redding Downtown

The Downtown area includes Redding's original town site, which was platted in 1872. The early vitality of the town was spurred by railroad activity as well as copper and gold mines located north of the town. Downtown still contains a number of early-century buildings, while the oldest neighborhoods in the City are located nearby. Construction of the Downtown Mall in 1973 significantly changed the face and vehicular circulation patterns of the Downtown Core.

Retail activity Downtown began to falter with the construction of Interstate 5, which bypassed the Downtown business district. As new retail businesses located (and existing businesses relocated) near freeway interchanges, Downtown retail activity began to give way to more and more office uses. Over the past several years, a very strong interest has developed in creating a modern and distinctive Downtown that is the social, governmental, office, and cultural center of the community, while maintaining a comfortable atmosphere.

To encourage this evolution to continue, new development Downtown should assume a different character than new development elsewhere in the City. It should present a more urban character, by ensuring that the most intense, tallest, and most interesting buildings in Redding are located in and around the Downtown Core. Such buildings can take many forms, from those that provide a mix of retail, office, and residential uses, which is the preferred Downtown Core development type, to the stand-alone office and residential buildings.

Downtown offers many opportunities for the development of urban-style buildings, represented by "mid-rise" and "high-rise" structures. For purposes of this General Plan, "mid-rise" refers to buildings with habitable floors up to 75 feet above the ground. This height will typically accommodate a six-story building, depending on its design. Considerable flexibility should be provided for the design of roof elements, mechanical penthouses, and other elements to exceed that height and add visual interest to the buildings. No height limit should be established for downtown high-rise buildings.

Mid-rise building development is appropriate in those areas that "ring" the Downtown Core, while high-rise development is appropriate in the Core area itself (Figure CDD-6). Mid-rise buildings will provide a transition from existing two- and three-story structures on the periphery of the Downtown to the future high-rise buildings in the Downtown Core. It also will provide an appropriate height transition from nearby residential uses. The design of these new buildings will be critical if they are to be a positive addition to Downtown and contribute to the desired pedestrian setting of the area. Goal 18 of this Element and its various policies address community building height, and call for the development of design guidelines for mid-rise and high-rise buildings that can be used to ensure that these buildings provide the positive image to the community that Redding seeks.

Despite encouraging the development of a modern and intense downtown area, Downtown Redding should be a place for pedestrians. Instead of setting buildings far back from the street, they should be close to the street. Instead of buildings being far apart, they should be close together and continuous. Ground-floor uses should be active, including retail, restaurants, and entertainment. Buildings should be designed so that people are protected from the weather by using overhangs, shade structures, and canopy trees. The design should encourage mid-block pedestrian circulation by utilizing and improving existing alleyways. Buildings should have several doors for people to enter shops and businesses, instead of a few doors with large expanses of blank walls. The ground floors of buildings should have clear windows so that inside activity is visible to people on the street, rather than mirrored glass or opaque walls. Building designs should allow for display windows and other areas of interest to encourage pedestrians to walk around and shop. Public spaces should be considered an integral element of the design of taller buildings, especially with high-rise structures.

To create the desired pedestrian atmosphere, on-street parking will be retained Downtown. Only limited amounts of parking should be located on individual lots. Most parking will be clustered in common lots or structures. When parking structures are developed, they should include retail frontages on the ground floor. Parking garages without retail frontage have the same impact as large blank walls—neither presents a pedestrian orientation. These and other design components are included in the Downtown Specific Plan.

The Downtown Focus Area includes provisions intended to:

- Encourage redevelopment in the area to establish Downtown as the office, entertainment, government, and cultural center of the City.

- Ensure that ample land is available Downtown for multiple-family development.

- Establish Downtown as an active, pedestrian-oriented district.

Downtown Focus Area Development Guidelines

D1. Ensure that new development is consistent with, and furthers the goals of, the Downtown Redding Specific Plan.

- Encourage high-rise office building developers to provide space for retail businesses to locate on the ground floors of buildings located in the commercial areas of the Downtown core.

- Encourage development in the Downtown area to include a mix of mid-rise and high-rise office buildings, consistent with Goal CDD18 and Figure CDD-6. Encourage mid-rise and high-rise buildings in the Core area to include a mix of commercial and residential uses.

- Provide Downtown entry features at strategic locations where appropriate.

- Facilitate redevelopment of the Union Pacific property into a unified, mixed-use, and/or cultural/entertainment complex which features ample public amenities and attractive streetscapes.
- Residential density should not be limited in the Downtown Core.

- Promote development similar to that of garden apartments north and east of the Pine Street School; recognize the potential of the school to be the hub of neighborhood activity.

- Allow outdoor uses such as restaurant seating, flower sales, and similar activities on private property and, where appropriate, on public property.

- Regularly assess the implementation of the Specific Plan and undertake amendments as necessary to ensure its vision is realized.

North Market Street

At one time the principal visitor-serving area in Redding, this portion of Old Highway 99 was known as the "Miracle Mile." With the construction of Interstate 5 in the 1970s, through traffic was diverted away from this area, and visitor services were provided at more convenient freeway interchange locations. While the Miracle Mile has languished over the years, it is poised once again to be a prime location for visitor services, as well as for housing, to meet the diverse needs

of the community. The impetus for this revival is the completion of the world-class Sundial Bridge, Turtle Bay Exploration Park, and the McConnell Arboretum. The City's riverfront regional park—Lake Redding/Caldwell Park—is also adjacent to the Miracle Mile corridor. From this location near the Sacramento River, visitors, as well as those who will reside along the corridor, will be able to walk a short distance to these major attractions, making it a very convenient location to enjoy these first-class facilities. Turtle Bay School is ideally situated to be the neighborhood school for children from kindergarten through the eighth grade whose families choose to live in a more urban environment rather than the single-family style that typifies Redding's residential areas.

In order to fully realize its potential, allowable land uses, and the physical arrangement of those uses, will be critically important. Equally important will be the design of new development on properties that will redevelop over time. Commercial uses should include lodging, restaurants, and small tourist-serving shops. Medium-density residential uses, configured in a mixed-use fashion, with retail and service uses, should be introduced to the corridor. Mid-rise buildings are encouraged on the east side of North Market Street, which will allow tenants on that side to take advantage of views of the river, the Sundial Bridge, and the McConnell Arboretum without impacting existing residential neighborhoods. New development should be unique, well-designed, include amenities that complement the attributes of this Focus Area, and incorporate a substantial landscape. The street-side landscape provided by the new development should complement the plant palette established with the construction of Market Street medians. Planters should also be appropriately scaled for an urban landscape. Signage should be understated.

The expansion of existing automobile-oriented uses and the introduction of new automobile sales or service use should be limited so that the vision of remaking the corridor can be attained.

North Market Street Development Guidelines

- Prepare a comprehensive design plan for the corridor that incorporates landscape features, building design, and architectural materials as funding permits.

- Encourage visitor-serving uses such as hotels, motels, restaurants, and small retail shops.

- Work with property owners to provide landscaping along the street frontages where feasible; develop a unified plan for landscape improvements.

- Consider seeking funding to establish a pedestrian trail along Sulphur Creek upstream of Market Street; explore options and funding for a pedestrian crossing of North Market Street.

- In consideration of the many scenic and recreational attributes in the Focus Area, allow the development of mid-rise buildings along the east side of North Market Street. Ideally, these projects will contain a mix of commercial, lodging, and residential uses.

- Allow the development of new automobile-oriented uses and the expansion of existing automobile-oriented uses only on the west side of North Market Street, between Quartz

Hill Road and Arboretum Drive. New automobile sales and service use and limited expansion of such existing uses elsewhere in the Focus Area should be strongly discouraged.

Riverfront Focus Area

The Park Marina riverfront area is one of the most visible waterfront areas within the community. Its proximity to Downtown and Turtle Bay Museums and Arboretum by the River makes the area a perfect location for water-oriented businesses and tourist or recreation-related facilities. Because of the unique nature of this area and the importance its development will have on the community, it is appropriate that the Specific Plan be revisited.

Riverfront Focus Area Development Guidelines

- Strive to ensure that development within the Park Marina area is designed to maximize the unique opportunities created by its riverfront location and complement development activities within the Downtown and Turtle Bay Museums and Arboretum by the River.

- Development in the Park Marina area should be designed to retain and integrate natural features associated with the riverfront to the fullest extent possible.

- Development in the Park Marina area should complement the Downtown Specific Plan, the Civic Center, and planned development activities at Turtle Bay Museums and Arboretum by the River.

- Regularly assess the implementation of the entire Redding Riverfront Specific Plan area and undertake amendments as necessary to ensure its vision is realized over time.

Magnolia Neighborhood

The Magnolia Neighborhood is among the oldest neighborhoods in Redding. The neighborhood is replete with examples of turn-of-the-century to post-World War II era architecture, including California Bungalows, Craftsman style, Prairie style, and Mediterranean Revival, among others. In response to declining housing stock and the establishment of high-density land uses that were clearly incompatible with the neighborhood, the City adopted the "Magnolia Neighborhood Plan" in 1976. This plan reduced allowable residential densities to prevent the construction of additional high-density apartment projects while establishing a moderate, multiple-family residential density throughout the neighborhood. This strategy has met with some success but has also generated some concerns. As a positive, the construction of additional three- to four-story apartment complexes was halted. However, several very large and dense multiple-family developments have been constructed at numerous locations in the neighborhood that are out of scale and incompatible with adjacent properties which could have a negative impact on maintaining the original and unique housing stock in the immediate vicinity. This is to say that the emergence of very dense apartments in the neighborhood may have acted as a disincentive for residents to make investments in upgrading existing homes due to the uncertainty of what may be constructed nearby.

It is the policy of this Plan to recognize and preserve the single-family housing stock in the Magnolia Neighborhood. To that end, the General Plan Diagram depicts the entire Neighborhood as single-family, notwithstanding the existing multiple-family uses. The following policies recognize existing multiple-family uses and much of the multiple-family zoning where it currently exists in the neighborhood, but restrict the manner in which those units can be reconstructed in the event of severe damage or destruction. The intent is to ensure that any new multiple-family construction in the neighborhood is compatible with the area to the maximum extent feasible.

Magnolia Neighborhood Focus Area Development Guidelines

- Conserve and enhance the Magnolia Neighborhood, as depicted on the Focus Area Diagram, as a "Single-Family Residential" area.

- Maintain "Multiple-Family" zoning only for existing apartment complexes. Rezone areas that are predominantly "Single-Family" to a single-family mixed district that accommodates existing and new uses such as multiple single-family dwellings on a lot, guesthouses, and second units.

- Establish standards for alterations or reconstruction of existing multiple-family structures to ensure neighborhood compatibility with respect to character, height, mass, form, setbacks, and materials.

California-Trinity Focus Area

This Focus Area is generally bounded by Center Street to the west, Riverside Drive to the north, an alley to the east, and Trinity Street to the south. This small neighborhood may be among the oldest neighborhoods in Redding with the maps creating the lots recorded in 1900 and 1901, similar to the Magnolia neighborhood to the west. The neighborhood includes a variety of architectural styles including Bungalows, Craftsman-style, and others. The neighborhood is mixed, being predominantly single-family in nature, although several apartment buildings and vacant commercial properties are located here. The neighborhood is also home to a historic church, located at the corner of Trinity and California Streets. Originally home to the Zion African Methodist Episcopal (AME) church, this small Gothic Revival church, erected in 1894, is the oldest house of worship in Redding.

The majority of the neighborhood is zoned for high-density residential uses, (20 units per acre) although the southern boundary is within the Downtown Redding Specific Plan's "Downtown Mixed-Use District." These land use classifications could result in significant changes to the neighborhood being made if and when properties redevelop in accordance with current zoning. This could result in a loss of the unique nature of the tree-lined neighborhood. In 2022, approximately one-third of the properties in the Focus Area were owner-occupied.

California-Trinity Development Guidelines

- Seek opportunities to partner with agencies and organizations to determine the historic significance of the neighborhood and its structures.

- Consider establishing a historic district overlay or other mechanisms if it is determined that such designation is warranted for all or a portion of the neighborhood.

- Consider developing and implementing guidelines to ensure that property redevelopment is done in a manner that is compatible with the neighborhood in terms of scale, architecture, location of parking, etc.

- Work with property owners to place any identified historic structures, particularly the historic church, to secure status on the National and State Registers of Historic Places and/or the City of Redding Register of Qualified Historic Structures. Seeking such designations would be at the sole desire of the property owners.

- Consider revisiting the current land use classifications if it is determined that different classifications would be appropriate and desirable by property owners to protect the neighborhood from incompatible development.

- Strive to maintain the existing mature street tree canopy.

Garden Tract Focus Area

The majority of this downtown-adjacent neighborhood was established by the "Garden Subdivision" map recorded in 1939. The neighborhood is generally bounded by Continental Street to the west, Butte Street to the north, South Street to the south and the ACID canal to the east. Perhaps unique for Redding's neighborhoods at the time, the map included a reservation for a "Children's Play Ground" at the southeast corner of Sacramento Street and Verda Avenue. The playground has since been replaced by four single-family homes. This neighborhood is also unique given the numerous service alleys and the tree canopy that shades the majority of streets and sidewalks. Single-family residences are the principal land use, although there are examples of apartments and other multiple-family uses in the neighborhood, as well as a middle school and commercial laundry depot. Many of the homes were constructed with single-car garages, although there are numerous instances where the garage has been converted in the past to provide additional living areas. This neighborhood has maintained its popularity over the years and properties continue to be well maintained. Placer Street, East Street, and South Street are the primary connections to the Downtown area from the neighborhood.

Additions to Sequoia Middle School as well as the Shasta Community Health Center facility have occurred at the periphery of the neighborhood and appear to be well received and not considered to be detrimental to the neighborhood. The Downtown Redding Specific Plan includes the Butte Street corridor within its boundaries which will likely result in additional commercial and/or higher-density residential development in the future. The Specific Plan identifies the area as within the Downtown Mixed-Use District and its regulations call for limiting building height to 45 feet adjacent to the neighborhood

Garden Tract Focus Area Development Guidelines

- Maintain the predominantly single-family use classification of the neighborhood as depicted on the General Plan Diagram. Discourage amendments that may introduce potentially incompatible residential densities and/or commercial uses unless supported by neighborhood residents.

- Strive to ensure that alleys are adequately maintained and do not become deteriorated by heavy vehicle use such as can occur with sanitation collection equipment.

- Continue to support, as appropriate, the use of Sequoia Middle School and its grounds for use by the public for sporting activities and outdoor public gatherings such as viewing the 4th of July Freedom Festival fireworks display.

- To the extent feasible, work with property owners who desire to construct one or more accessory dwelling units on their property to be sensitive to the concerns of adjacent property owners with respect to building location, materials, and height.

- Work with project proponents along the south side of Butte Street to design proposed developments that will result in appropriate setbacks, height transitions, building articulation, placement of windows, and similar design considerations so as to minimize potential visual and privacy impacts to adjacent existing residential development.

- Work with ACID and property owners, as appropriate, to provide trail access along the ACID Canal between SR44 and Cypress Avenue to provide for neighborhood mobility options and routes to schools that reduce the need to traverse City streets.

Redding Regional Airport Environs Focus Area

Properties within the Redding Regional Airport Focus Area provide Redding and the larger urban area with vast opportunities for economic development and employment. They also provide the ability to develop lodging, food, and other services needed in the region. While the Airport Road corridor has accommodated a mix of service and industrial uses for decades, more intense development in the vicinity of the Redding Regional Airport (Airport) occurred with the creation of the Redding Airport Business Park to the west and the Stillwater Business Park to the east of the Airport. Both of these industrial/business projects were spearheaded by the City and were developed on lands that at one time were part of the original Airport property. The Redding Airport Business Park contains a number of successful business and industrial uses as well as vacant properties. The Stillwater Business Park provides a number of larger "shovel-ready" industrial sites that are also served by the City of Redding utilities.

Ongoing efforts to increase airline service to and from Redding have been fruitful and residents and businesses enjoy an expanded choice of destinations to and from Redding. Business and leisure travelers now have many more options for direct flights to locations such as San Francisco, Los Angeles, Seattle, and other larger cities/airports. With the increase in the use of the Airport comes a need to accommodate additional services in the area such as lodging and restaurants to address

the comfort and convenience of those using the Airport for travel, both business and leisure. Additional services would also provide more options for those working and residing in the area to access additional food services, retail options, and other urban amenities.

Redding Regional Airport Environs Focus Area Development Guidelines:

- Support and facilitate the development of visitor and business traveler uses such as lodging and restaurants in proximity to the Airport.

- Continue to support and facilitate improvements and upgrades to Redding Regional Airport and the achievement of the goals and policies of the Economic Development Element related to the airport.

- Support efforts to establish needed "workforce housing" in proximity to the Stillwater Business Park as employment expands over time.

- Continue to implement the Airport Road widening plan as traffic needs dictate, including the realignment of the Fig Tree Lane intersection to facilitate a second access to the Stillwater Business Park and other industrial lands in the area.

- Work with the Shasta County Airport Land Use Commission (ALUC) to update the airport's Comprehensive Land Use Plan (CLUP).

- Refer any proposed amendments to land use classifications to the ALUC for review and comment related to consistency with the CLUP.

Oasis Road Focus Area

In response to policies contained in the 2000-2020 General Plan, the City prepared and adopted the Oasis Road Specific Plan (ORSP) to establish land use classifications, zoning, development guidelines, and other tools to guide future development in the area. The ORSP included approximately 760 acres and set the stage to accommodate over 3 million square feet of commercial uses, over 2,000 dwelling units, as well as public parks and the infrastructure needed to support the anticipated level of development. The City also adopted the North Redding Traffic Benefit District (NRTBD) as a mechanism to finance needed roadway improvements as well as a Public Facilities Financing Plan for funding other public improvements. Since the adoption of these documents, current circumstances suggest that the ORSP and supporting documents should be reviewed. These include the following:

- Very little development has occurred in the area since the adoption of the ORSP in 2006, calling into question the underlying land use expectations.

- The traffic analyses for the ORSP and the NRTBD were based on the previous Shasta County Traffic Demand Model which has since been updated. The current model assumes that background traffic and project traffic generation levels will be substantially lower than

projected by the previous version of the traffic model, suggesting that the scale of certain roadway improvements needed may be overstated.

- The nature of retail has changed over the years, with an increasing interest in online shopping and less reliance on brick-and-mortar establishments, suggesting that a revised market or other analysis of the current and projected needs for commercial land in the ORSP area should be revisited.

- Community expectations for development in Redding have evolved over time and development trends such as mixed-use developments are becoming more desirable and possibly should be better addressed in the ORSP.

Oasis Road Focus Area Development Policies

OESP1 - Consider undertaking a review of the underlying assumptions of the ORSP and its supporting financial documents to ascertain whether the ORSP should be rescinded or amended to reflect more current market and community conditions and desires for the area, and seek City Council direction in that regard.

Parkview Neighborhood Focus Area

The Parkview Neighborhood is among Redding's older neighborhoods. It lies south of Cypress Avenue between the west bank of the Sacramento River and State Highway 273. Grange Street separates the primarily residential northern portion from a small industrial pocket in the south. Commercial/office uses have developed along the highway frontage and Parkview Avenue. Redding's Civic Center complex and South City Park are located immediately across Parkview Avenue to the north.

Parkview experienced marked deterioration prior to the 1990s, and declined from the status it saw in the 1950s and '60s as an attractive middle-class residential neighborhood.

The decline is, in part, attributable to the establishment of higher-density land uses, along with the transformation of many of the existing single-family homes into rental properties. Coupled with the close proximity of industrial and service commercial uses with little or no buffer zone, the quality of life within portions of the residential neighborhood is poor. Deferred maintenance and neglect are evident with many structures. Because much of the pattern of development occurred prior to establishment of current standards, many developed parcels are substandard in size, have inadequate setback from the street and neighboring properties, and have inadequate access.

The neighborhood has been the focus of Redding's Neighborhood Police Unit (NPU) for several years. While the area is showing positive trends toward alleviation of most gang- and drug-related criminal activity, the NPU is still faced with a level of calls for service that far exceeds other similarly-sized neighborhoods in Redding. The Redding Redevelopment Agency (since terminated by State action) prepared and the City approved the Parkview Neighborhood Strategic Revitalization Plan in January 2001. The Plan provided conditions that stimulated the neighborhood from an economic standpoint through steps such as:

- Improving the existing dwelling units by actively pursuing various code violations and providing financial incentives.

- Increasing the level of home ownership.

- Improving the quality of life of residents by providing parks, sidewalks, and other amenities.

- Providing opportunities for mixed-use development along Parkview Avenue.

- Generally creating an environment that attracts buyers and investors to the neighborhood.

Parkview Neighborhood Area Development Guidelines

The activities called for in the revitalization plan are still appropriate and should be used to guide future development/redevelopment. These actions include:

- Preserving and enhancing the residential nature of the core area through establishment of effective buffer land uses, especially between the residential portion and the industrial/service commercial uses to the south and west and between single- and multiple-family uses, and by utilizing innovative design features.

- Providing improved access to the Sacramento River, a connection to the Sacramento River Trail, and other needed recreational amenities in the neighborhood.

- Facilitating mixed-use development that allows retail, commercial office, and residential components on Parkview Avenue. Establishing appropriate design review guidelines and development standards that will guide development along the corridor.

- Creating high-quality, affordable residential development that integrates new construction with existing dwellings and which provides a catalyst to encourage private reinvestment in the neighborhood.

- Facilitating the needed neighborhood traffic and circulation improvements in the context of the needs of the entire neighborhood.

Opportunity Areas

In working with a group of community members, the Community Development and Design Element identifies a number of "opportunity areas" in the City. The intent is to identify areas along arterial street corridors with unique opportunities for development that can be accomplished through incentives and development directives to create activity centers by increasing density, mixing uses, and by promoting multi-modal transportation systems. This section identifies three areas and each of the unique opportunities, as illustrated by accompanying maps and photomontages, intended to incentivize private redevelopment within these areas.

Hartnell and Victor Avenue

The Hartnell and Victor Avenue area, as identified in Figure CDD-5, has an abundance of underutilized or vacant properties that have readily available services and infrastructure to suit the needs of a denser, more diverse development. With the increased bicycle ridership in Redding, the intersections along Hartnell and Victor Avenue corridors will benefit from improved connections and improvements.

- Consider adopting development/design guidelines for use by property owners who seek to redevelop existing structures, and/or establish new uses or a different mix of uses.

- Encourage and incentivize the development of a diverse mix of uses and flexible-use spaces to create nodes that are attractive and well-connected to the nearby residential development.

- Encourage bike-ability and walkability in the area through a planned trail network, active transportation improvements, and improved road intersections.

Bechelli Lane

Bechelli Lane is currently zoned for a mix of multi-family and commercial uses, but its development pattern is largely underutilized. At various locations, properties along the corridor may benefit from diversification. Zoning changes or flexibility in zoning can act as a catalyst for infill development that can accommodate a variety of uses to serve the community.

- Infill priority sites along the corridor should be identified and zoning flexibility provided to accommodate mixed-use development with active frontages. Consider providing development incentives, as appropriate.

- Encourage a diverse mix of uses and flexible-use spaces to create nodes that are attractive, and well-connected to the nearby residential development.

- Consider rezoning commercial properties to mixed-use to accommodate multiple-family residential development along Bechelli Lane at appropriate locations with the support of property owners.

- Provide attractive streetscape and landscape improvements along South Bechelli Lane to enhance neighborhood vitality and to promote the development of a vibrant community as funding allows.

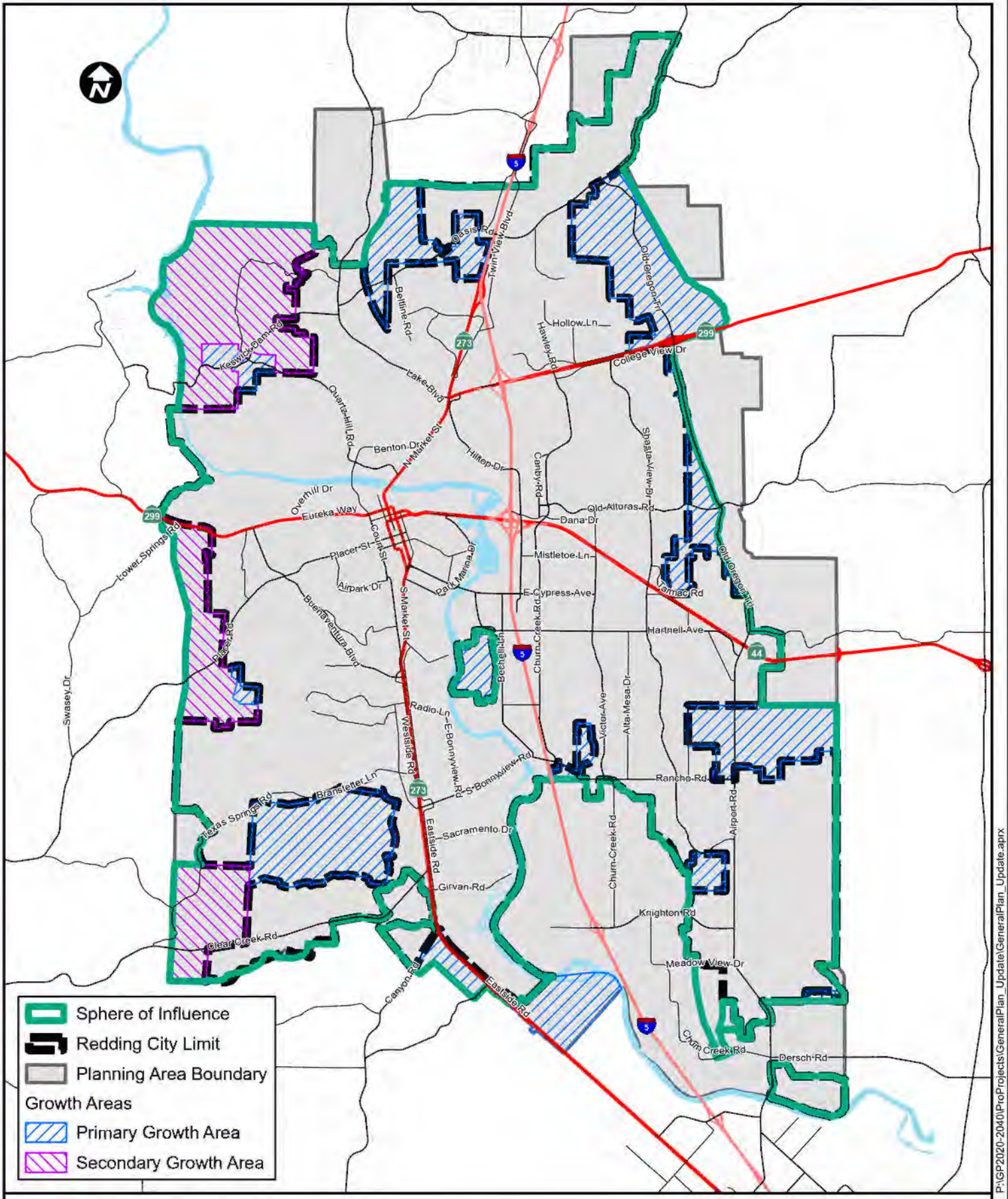
South Market Street

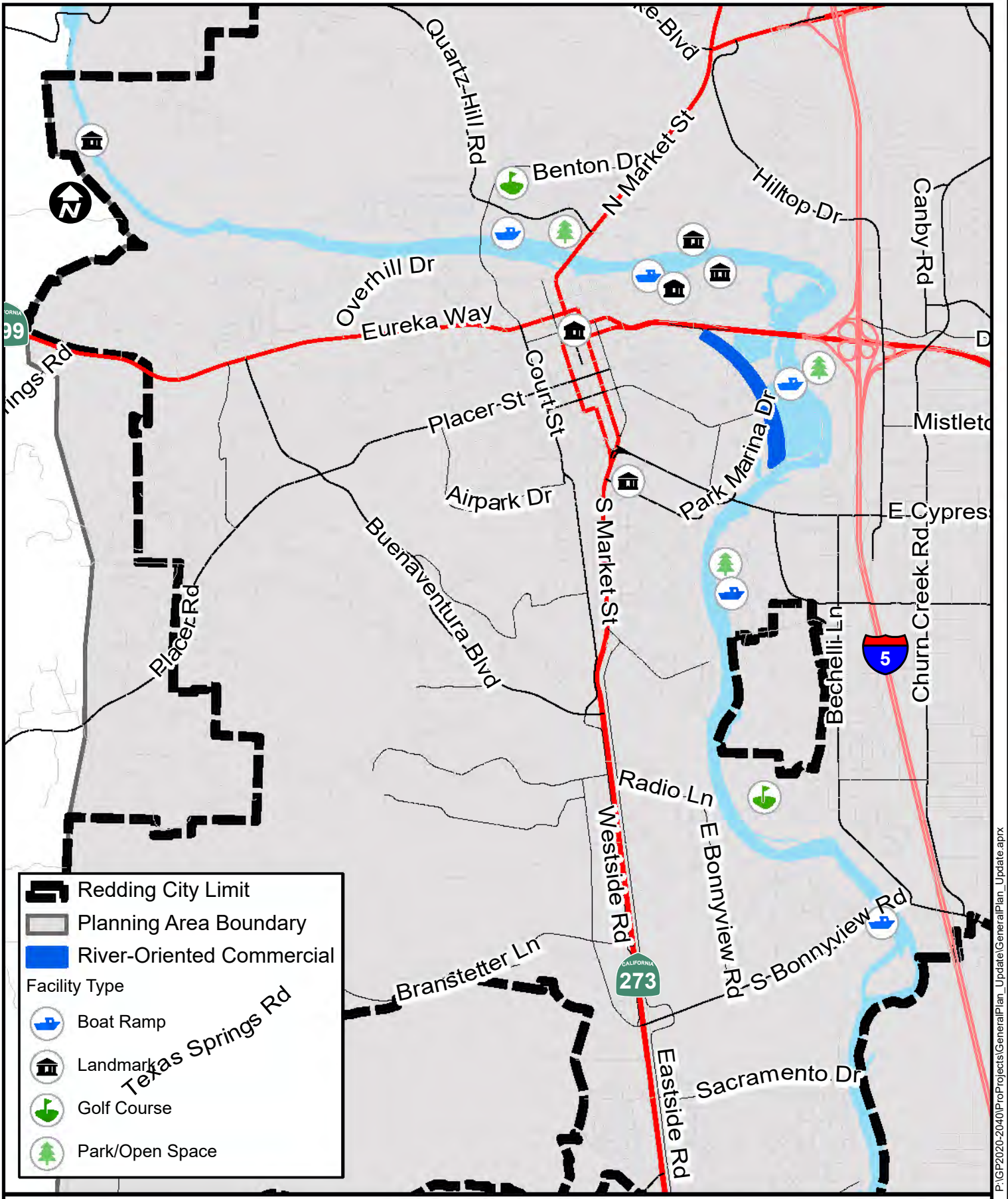
South Market Street is characterized by the railroad and the industrial development along the corridor. The underutilized and vacant industrial parcels abutting the single-family neighborhood provide an opportunity for redevelopment potential for residential and accompanying services.

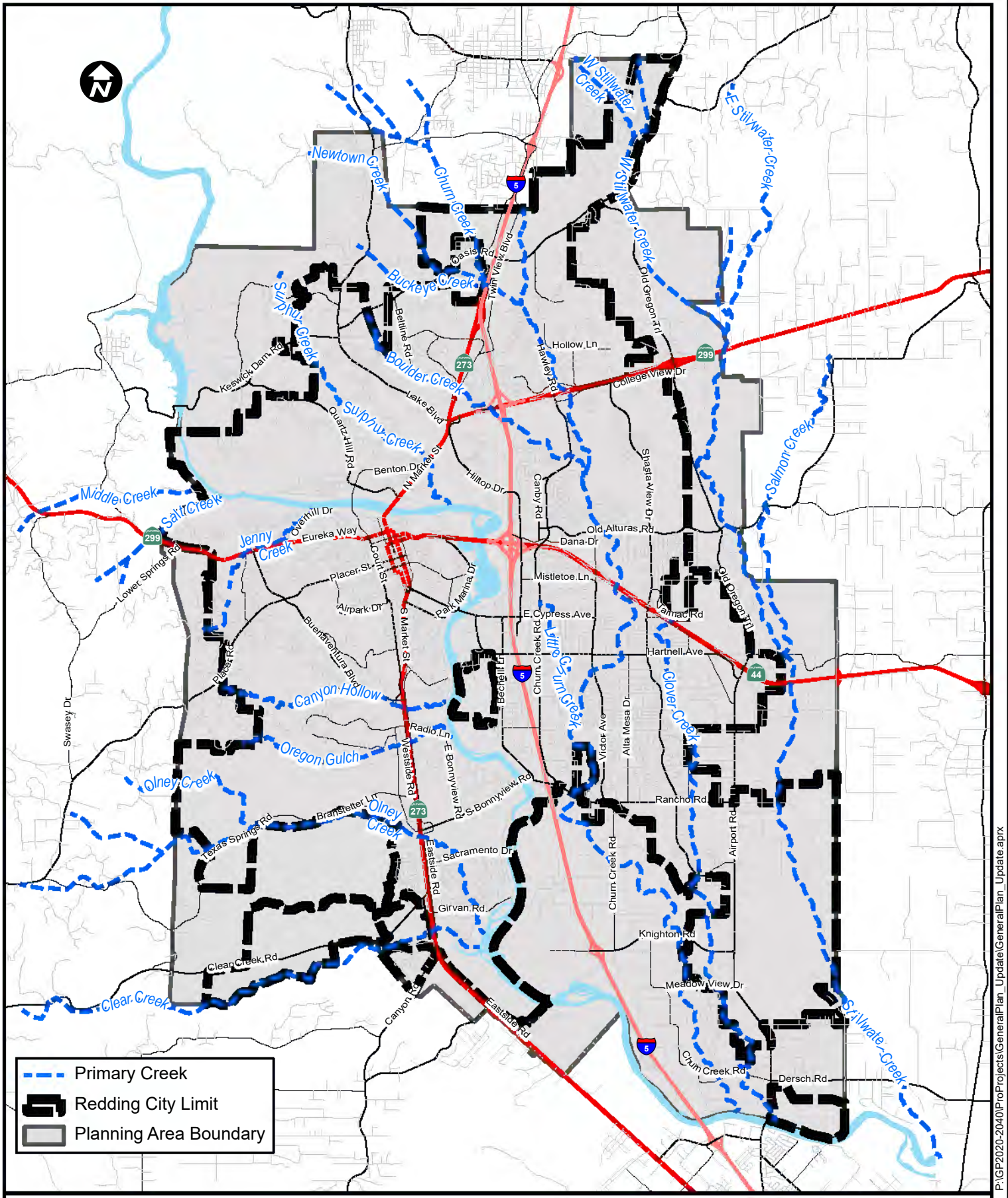
- Consider rezoning appropriate parcels along South Market Street, as identified in Figure CDD-5, to accommodate multiple-family residential development and/or mixed-use. Incorporation of pedestrian and bicycle facilities in new development and a plan for connections to services nearby should be developed.

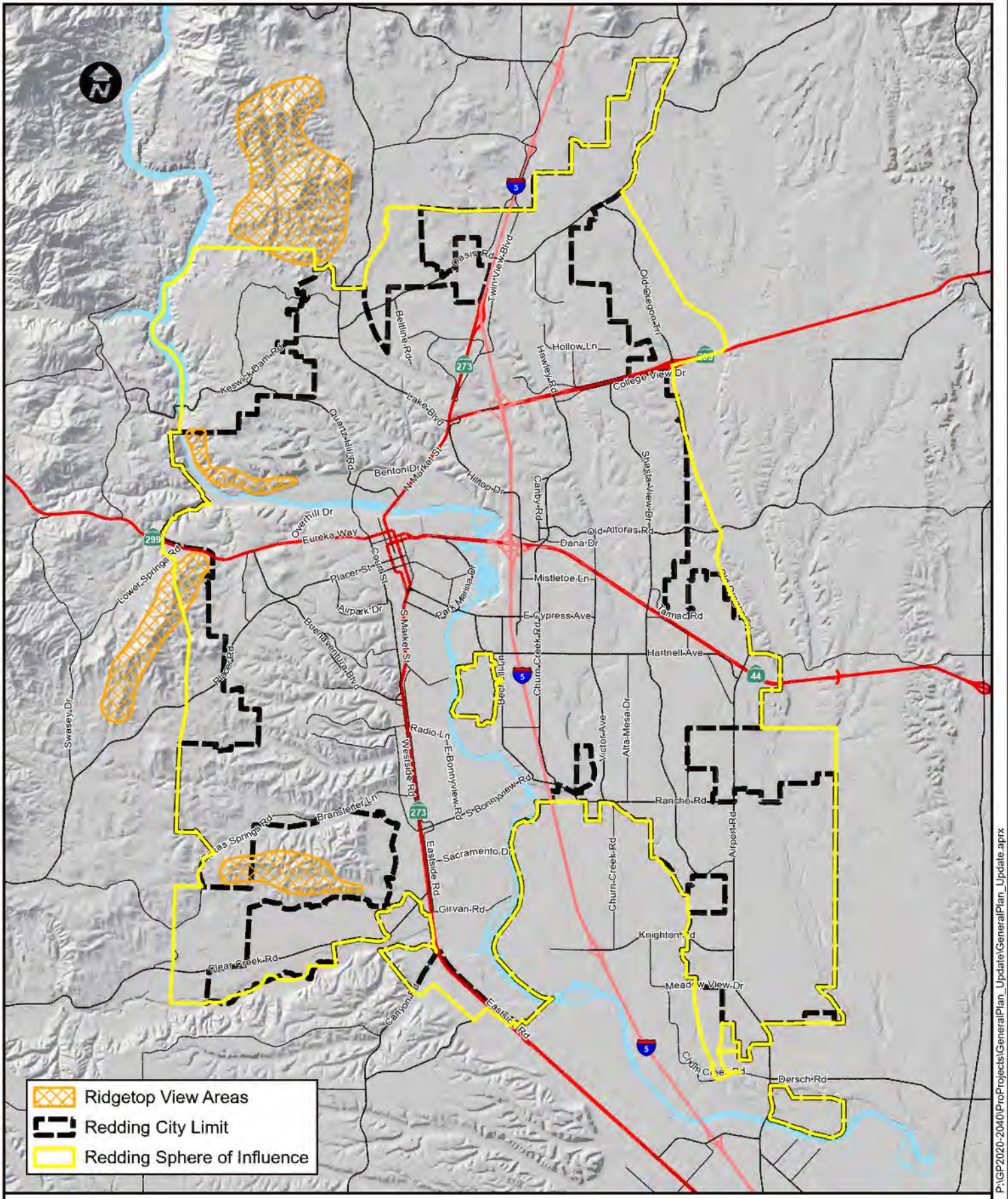
- Consider providing a protected or buffered bike lane along SR273 for commuting and to serve as a connection to Downtown. Ensure the safety of users by incorporating district paved surfaces, lighting, street crossings, and other traffic calming features.

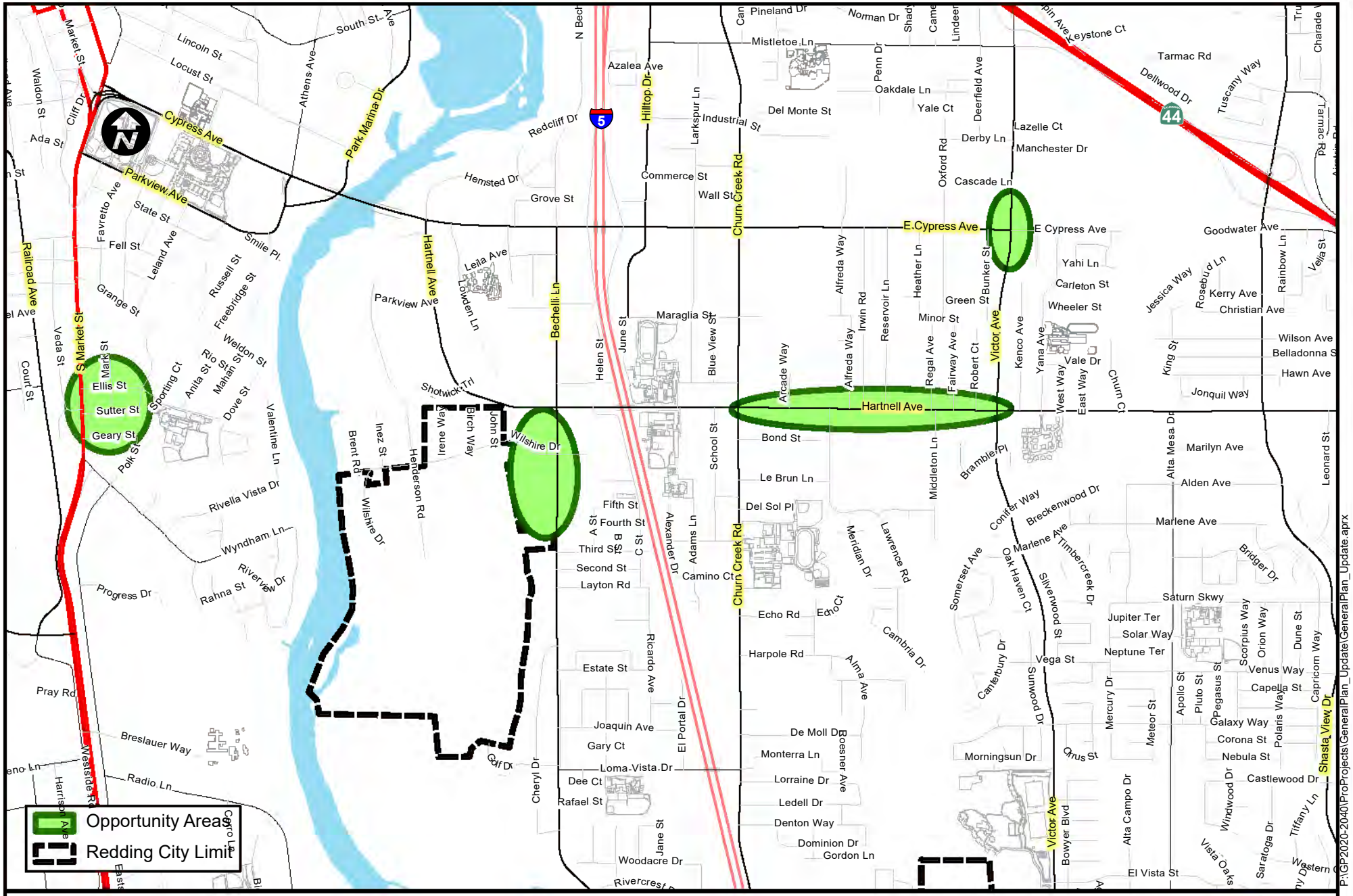
- Allow for flexibility of heavy commercial-zoned properties to provide amenities for nearby residential neighborhoods.

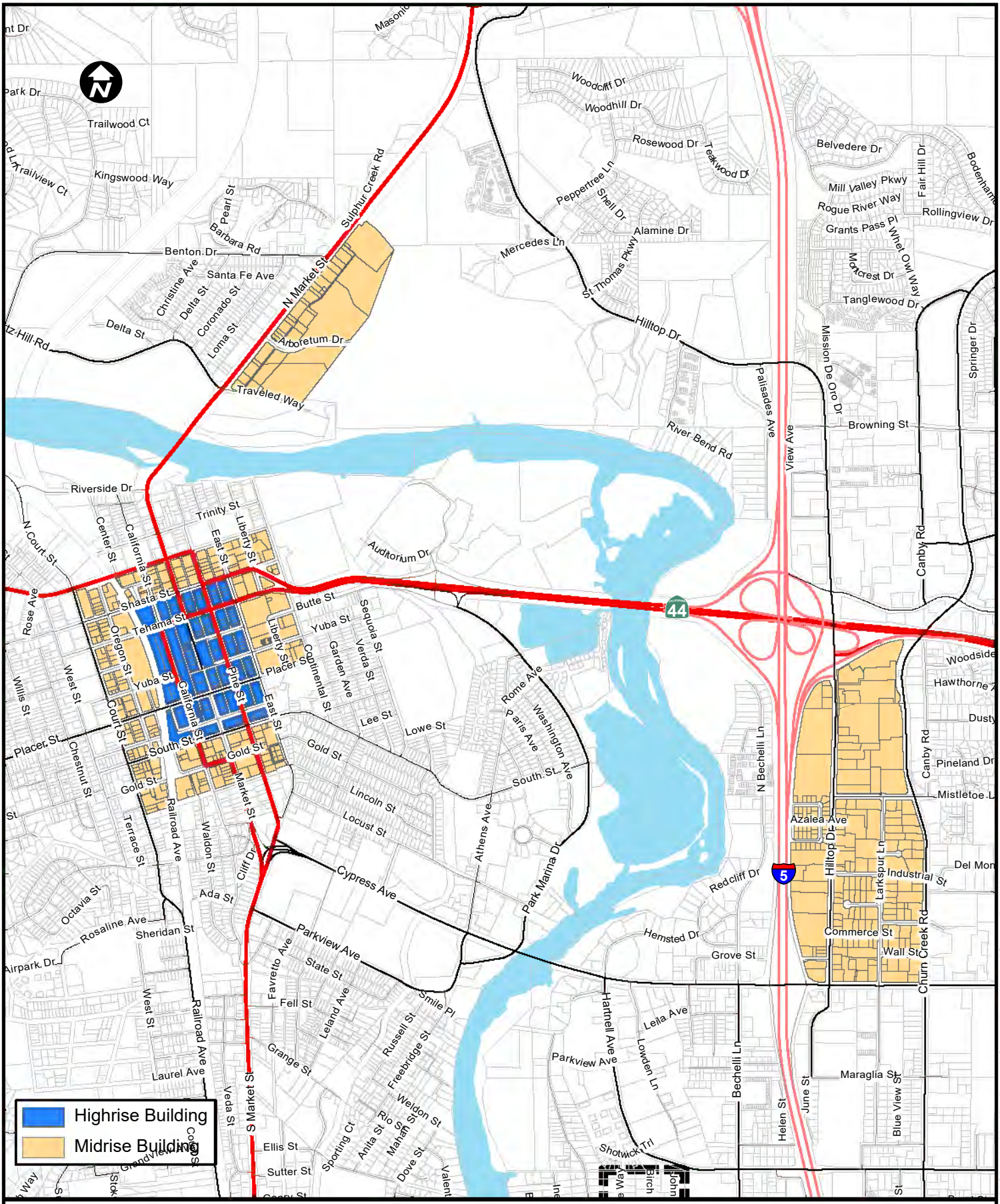

Sphere of Influence
Redding City Limit
Planning Area Boundary
Growth Areas
Primary Growth Area
Secondary Growth Area
Miles
0 1 2
CDD-1
Updated Planning and Growth Areas
Print Date: April 13, 2023
P:\GP2020-2040\ProProjects\GeneralPlan_Update\GeneralPlan_Update.aprx


Quartz Hill Rd
Benton Dr
N Market St
Hilltop Dr
Canby Rd
Overhill Dr
Eureka Way
Court St
Placer St
Airpark Dr
Park Marina Dr
S Market St
Buenaventura Blvd
Placer Rd
Bechelli Ln
Churn Creek Rd
Radio Ln
E Bonnyview Rd
S Bonnyview Rd
Westside Rd
Eastside Rd
Branstetter Ln
Texas Springs Rd
Sacramento Dr
Redding City Limit
Planning Area Boundary
River-Oriented Commercial
Facility Type
Boat Ramp
Landmark
Golf Course
Park/Open Space
Miles
0
0.5
1
CDD-2
Sacramento River
Recreational, Cultural, and Commercial Areas
Print Date: April 13, 2023
P:\GP2020-2040\ProProjects\GeneralPlan_Update\GeneralPlan_Update.aprx


Primary Creek
Redding City Limit
Planning Area Boundary
Miles
0
1
2
CDD-3
Primary River and Creek Corridors
Print Date: April 13, 2023
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Ridgetop View Areas
Redding City Limit
Redding Sphere of Influence
Miles
0 1 2
CDD-4
Prominent Ridgetops
Print Date: April 13, 2023
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Opportunity Areas
Redding City Limit
Hartnell Ave
E.Cypress Ave
Churn Creek Rd
Bechelli Ln
Victor Ave
S Market St
Railroad Ave
Parkview Ave
Cypress Ave
Park Marina Dr
Hilltop Dr
Wilshire Dr
Shotwick Trl
Golf Dr
Loma Vista Dr
Shasta View Dr
Lincoln St
Locust St
Ada St
Waldon St
Athens Ave
South St
Redcliff Dr
Azalea Ave
Mistletoe Ln
Pineland Dr
Norman Dr
Keystone Ct
Tarmac Rd
Dellwood Dr
Tuscany Way
Del Monte St
Oakdale Ln
Yale Ct
Deerfield Ave
Penn Dr
Lazelle Ct
Derby Ln
Manchester Dr
Oxford Rd
Cascade Ln
Commerce St
Wall St
Grove St
Hemsted Dr
Industrial St
Larkspur Ln
Fell St
State St
Favretto Ave
Leland Ave
Russell St
Freebridge St
Smile Pl
Grange St
Veda St
Court St
Mark St
Ellis St
Sutter St
Geary St
Polk St
Sporting Ct
Anita St
Rio St
Mahan St
Weldon St
Dove St
Valentine Ln
Rivella Vista Dr
Wyndham Ln
Riverview Dr
Rahna St
Progress Dr
Pray Rd
Breslauer Way
Radio Ln
Westside Rd
Harris Ave
Carro Ln
Lejla Ave
Lowden Ln
Parkview Ave
Helen St
June St
Maraglia St
Blue View St
School St
Bond St
Le Brun Ln
Fifth St
Fourth St
Third St
Second St
Layton Rd
A St
B St
C St
Alexander Dr
Adams Ln
Camino Ct
Del Sol Pl
Echo Rd
Echo Ct
Harpole Rd
Estate St
Ricardo Ave
El Portal Dr
Joaquin Ave
Gary Ct
Cheryl Dr
Dee Ct
Rafael St
Jane St
Woodacre Dr
Rivercrest Dr
De Moll Dr
Monterra Ln
Lorraine Dr
Ledell Dr
Denton Way
Dominion Dr
Gordon Ln
Boosenec Ave
Alma Ave
Cambria Dr
Meridian Dr
Lawrence Rd
Somerset Ave
Oak Haven Ct
Canterbury Dr
Sunwood Dr
Silverwood St
Timbercreek Dr
Marlene Ave
Breckenwood Dr
Conifer Way
Bramble Pl
Middleton Ln
Arcade Way
Alfreda Way
Irwin Rd
Reservoir Ln
Regal Ave
Fairway Ave
Robert Ct
Heather Ln
Green St
Minor St
Bunker St
Kenco Ave
Yana Ave
West Way
East Way
Vale Dr
Wheeler St
Carleton St
Yahi Ln
Churn Ct
Alta Mesa Dr
Marilyn Ave
Alden Ave
Bridger Dr
Saturn Skwy
Jupiter Ter
Solar Way
Neptune Ter
Vega St
Venus Way
Capella St
Galaxy Way
Corona St
Nebula St
Castlewood Dr
Windwood Dr
Vista Oaks
Saratoga Dr
Tiffany Ln
Western Dr
El Vista St
Alta Campo Dr
Bowyer Blvd
Morningsun Dr
Orus St
Mercury Dr
Meteor St
Apollo St
Pluto St
Pegasus St
Scorpius Way
Orion Way
Dune St
Capricorn Way
Polaris Way
Goodwater Ave
Vella St
Rainbow Ln
Kerry Ave
Christian Ave
Jessica Way
Rosebud Ln
King St
Wilson Ave
Belladonna St
Hawn Ave
Jonquil Way
Leonard St
Charade Ln
Tarmac Rd
Cliff Dr
Market St
Irene Way
Birch Way
John St
Brent Rd
Inez St
Henderson Rd
Wilshire Dr
Feet
0
1,000
2,000
CDD-5
Opportunity Areas
Print Date: April 13, 2023
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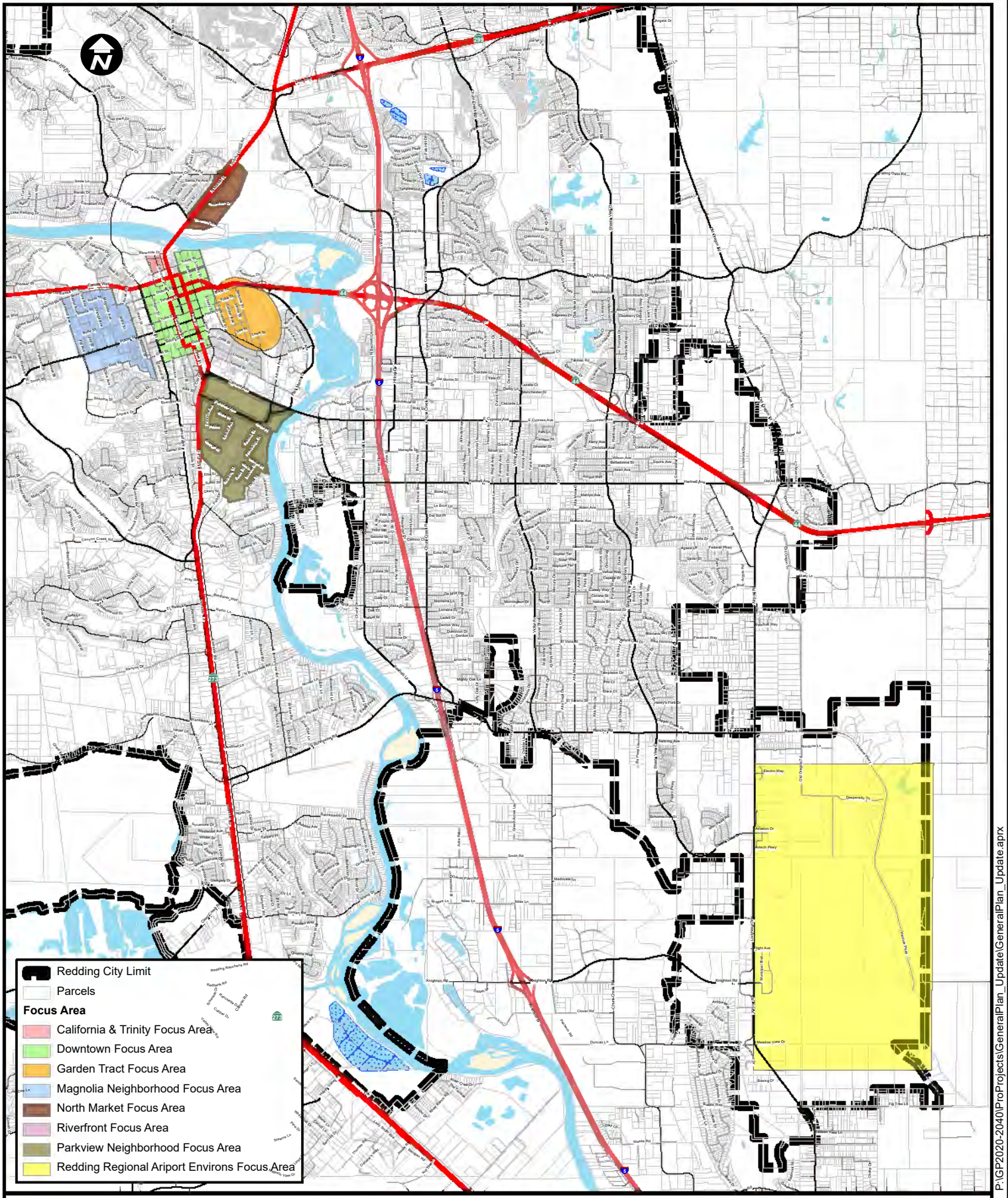


0 1,000 2,000 US Feet

CDD-6
Community Building Heights

Print Date: April 13, 2023

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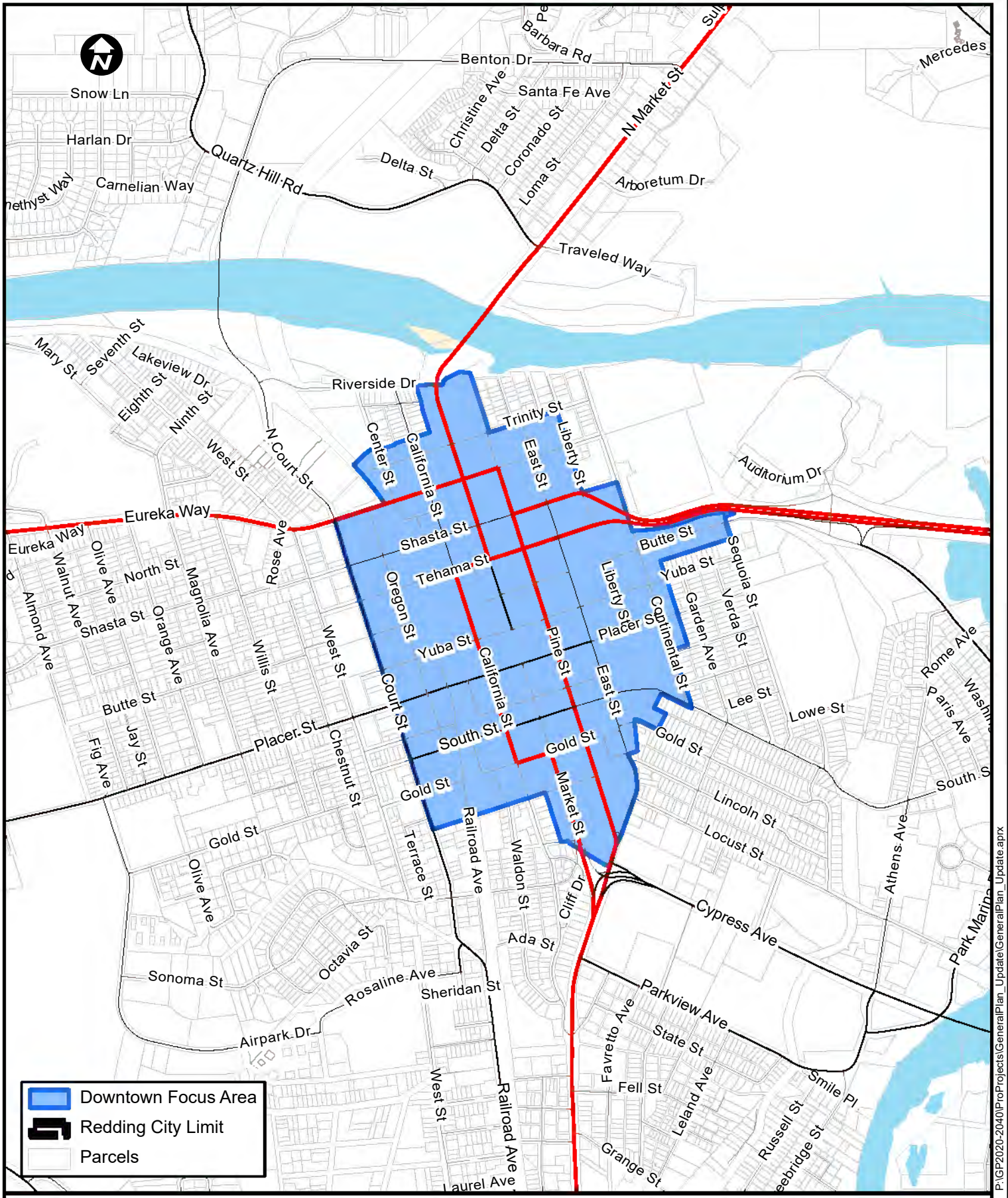


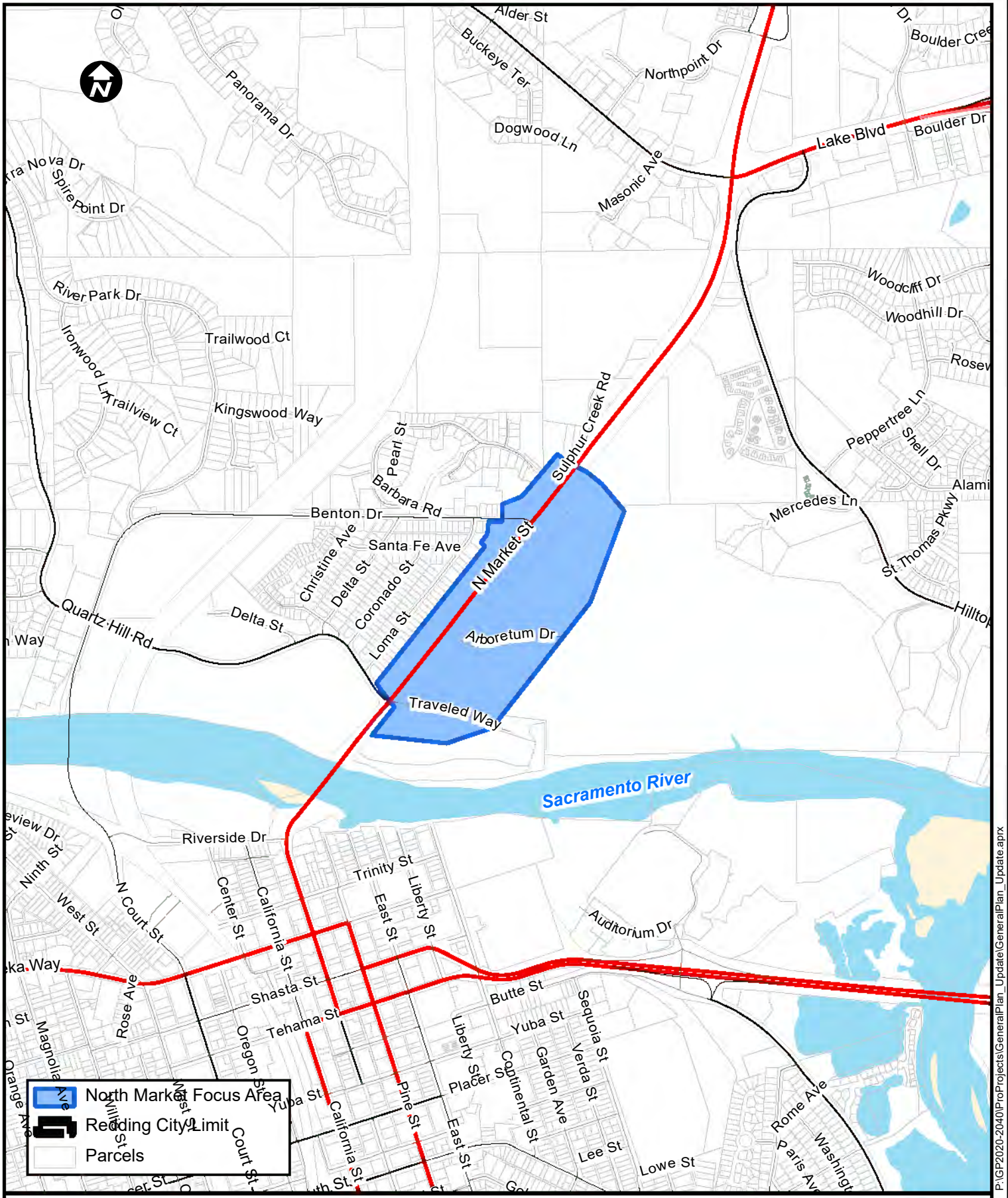
Feet
0 4,000 8,000

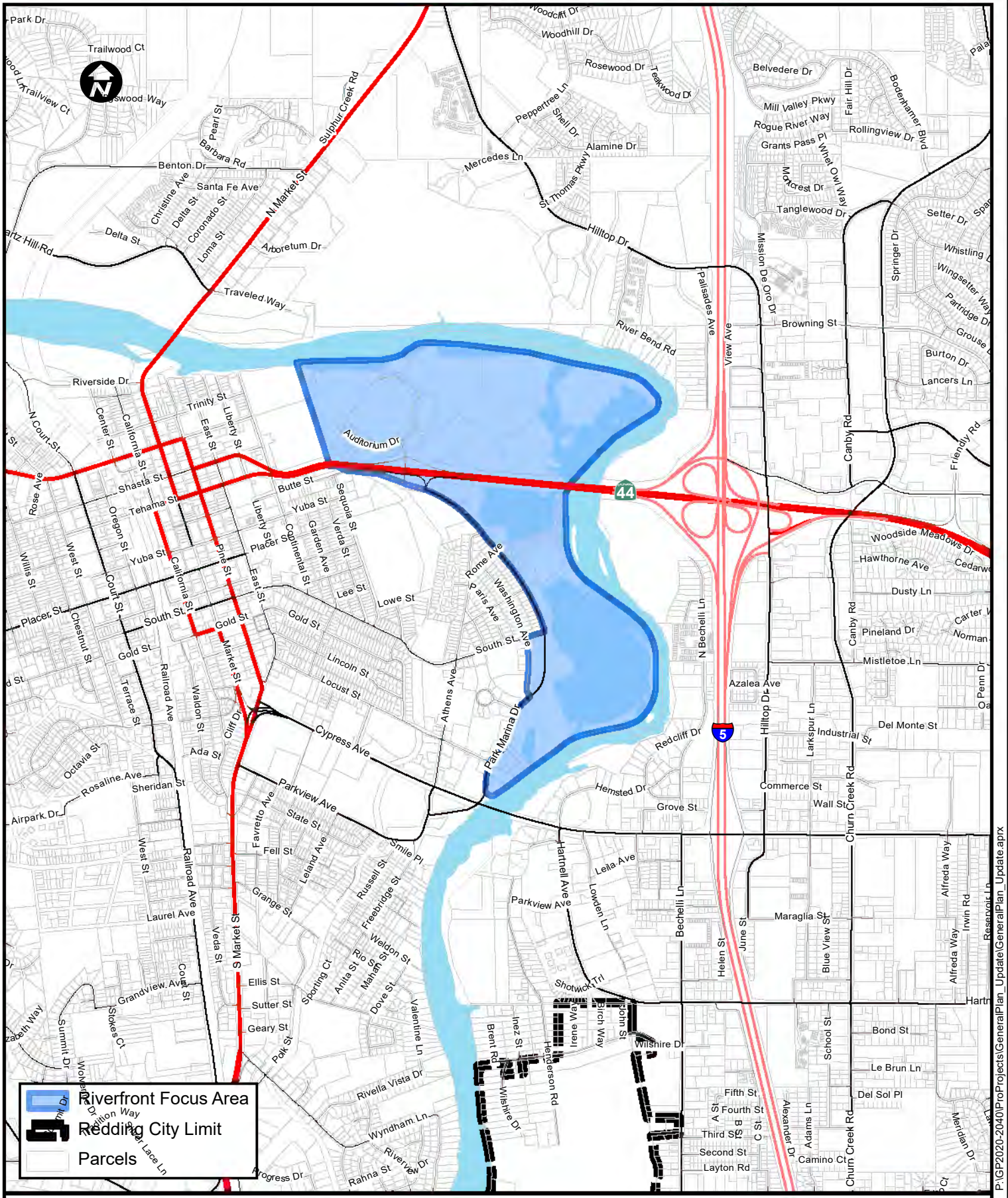
CDD-7
Focus Areas

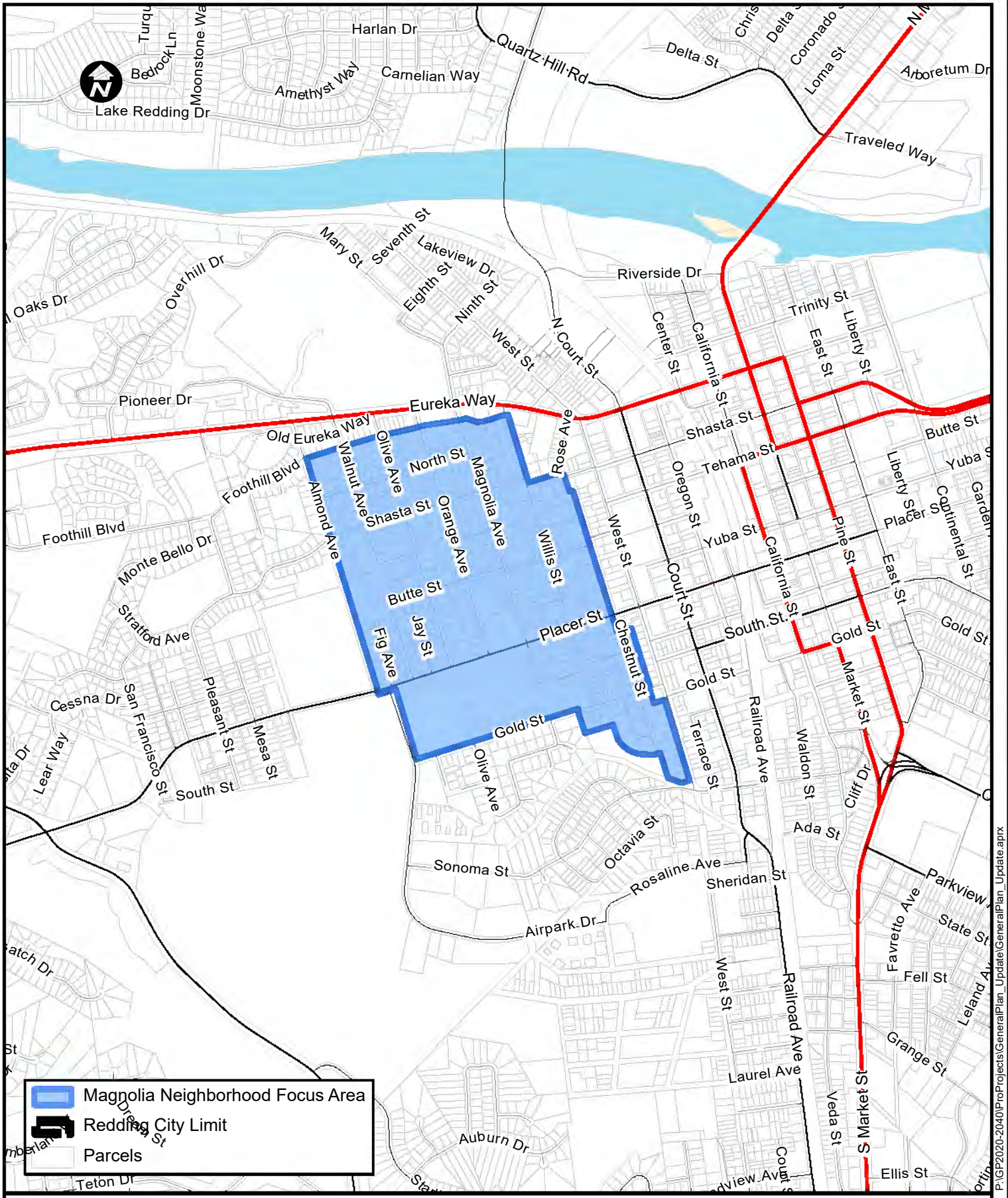
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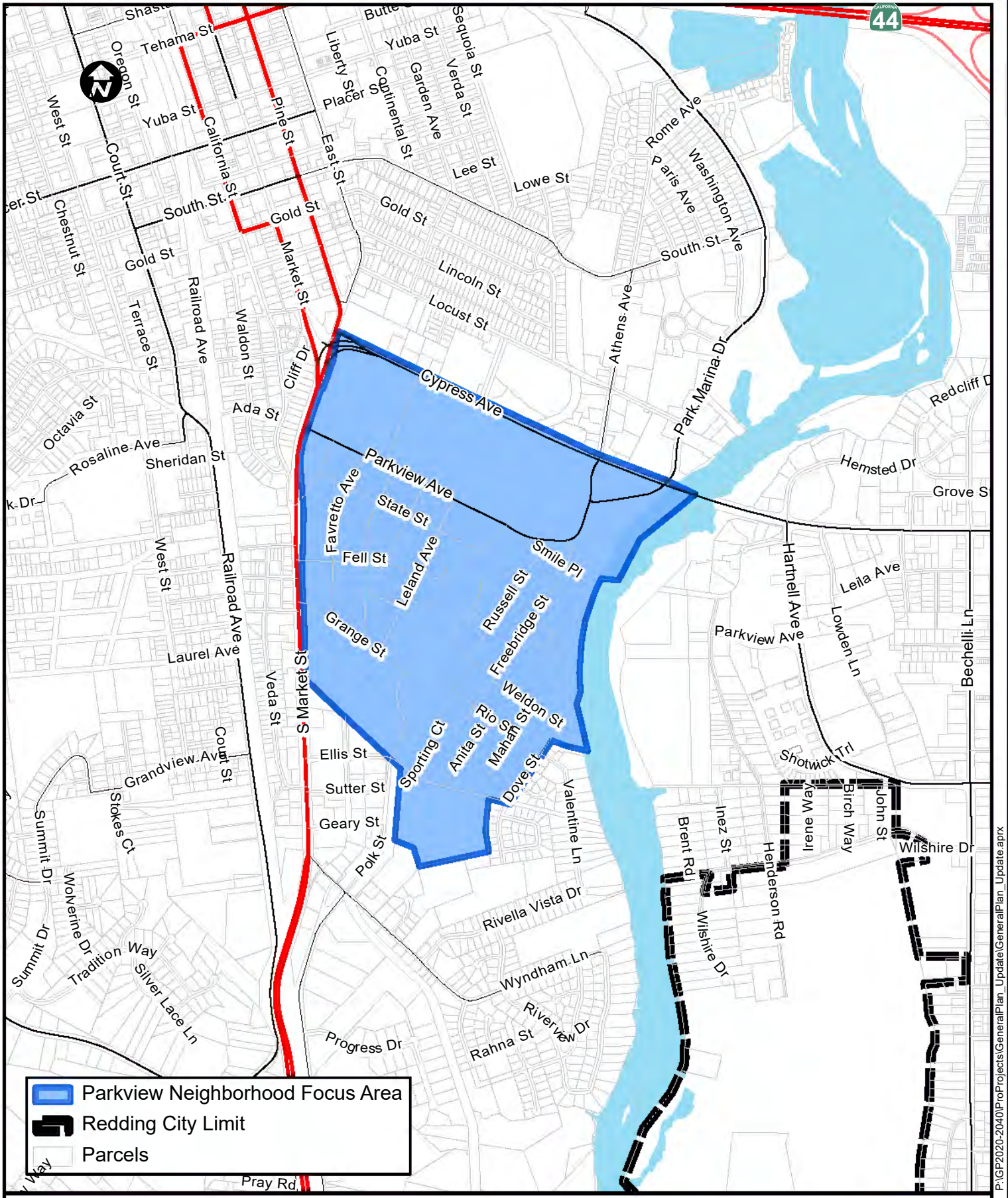
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Downtown Focus Area
Redding City Limit
Parcels
Feet
0
1,000
2,000
CDD-8
Downtown Focus Area
Print Date: April 13, 2023
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Snow Ln
Harlan Dr
Carnelian Way
Quartz Hill Rd
Benton Dr
Barbara Rd
Christine Ave
Santa Fe Ave
Delta St
Coronado St
Loma St
N Market St
Arboretum Dr
Traveled Way
Mercedes
Riverside Dr
Trinity St
Center St
California St
East St
Liberty St
Auditorium Dr
Mary St
Seventh St
Lakeview Dr
Eighth St
Ninth St
West St
N Court St
Eureka Way
Rose Ave
Shasta St
Tehama St
Butte St
Oregon St
Yuba St
Placer St
Pine St
Continental St
Garden Ave
Verda St
Sequoia St
Liberty St
Olive Ave
North St
Walnut Ave
Almond Ave
Magnolia Ave
Orange Ave
Willis St
Court St
Chestnut St
Fig Ave
Jay St
South St
Gold St
Lee St
Lowe St
Rome Ave
Paris Ave
Lincoln St
Locust St
Athens Ave
Cypress Ave
Park Marina
Terrace St
Railroad Ave
Waldon St
Cliff Dr
Market St
Ada St
Octavia St
Sonoma St
Rosaline Ave
Sheridan St
Airpark Dr
Parkview Ave
State St
Favretto Ave
Fell St
Leland Ave
Smile Pl
Russell St
Grange St
Laurel Ave


Alder St
Buckeye Ter
Northpoint Dr
Panorama Dr
Dogwood Ln
Lake Blvd
Boulder Dr
Masonic Ave
Spire Point Dr
River Park Dr
Trailwood Ct
Ironwood Ln
Trailview Ct
Kingswood Way
Woodcliff Dr
Woodhill Dr
Peppertree Ln
Shell Dr
Mercedes Ln
St Thomas Pkwy
Sulphur Creek Rd
Pearl St
Barbara Rd
Benton Dr
Christine Ave
Santa Fe Ave
Delta St
Coronado St
Loma St
N Market St
Arboretum Dr
Traveled Way
Quartz Hill Rd
Sacramento River
Riverside Dr
Trinity St
Liberty St
East St
Center St
California St
N Court St
West St
Ninth St
Auditorium Dr
Shasta St
Tehama St
Butte St
Yuba St
Sequoia St
Verda St
Garden Ave
Continental St
Placer St
Liberty St
Rose Ave
Oregon St
Pine St
Lee St
Lowe St
Rome Ave
Paris Ave
North Market Focus Area
Redding City Limit
Parcels
0
1,000
2,000
Feet
CDD-9
North Market Street Focus Area
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Riverfront Focus Area
Redding City Limit
Parcels
Feet
0 1,000 2,000
CDD-10
Riverfront Focus Area
Print Date: April 13, 2023
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Magnolia Neighborhood Focus Area
Redding City Limit
Parcels
Feet
0
1,000
2,000
CDD-11
Magnolia Neighborhood Focus Area
Print Date: April 13, 2023
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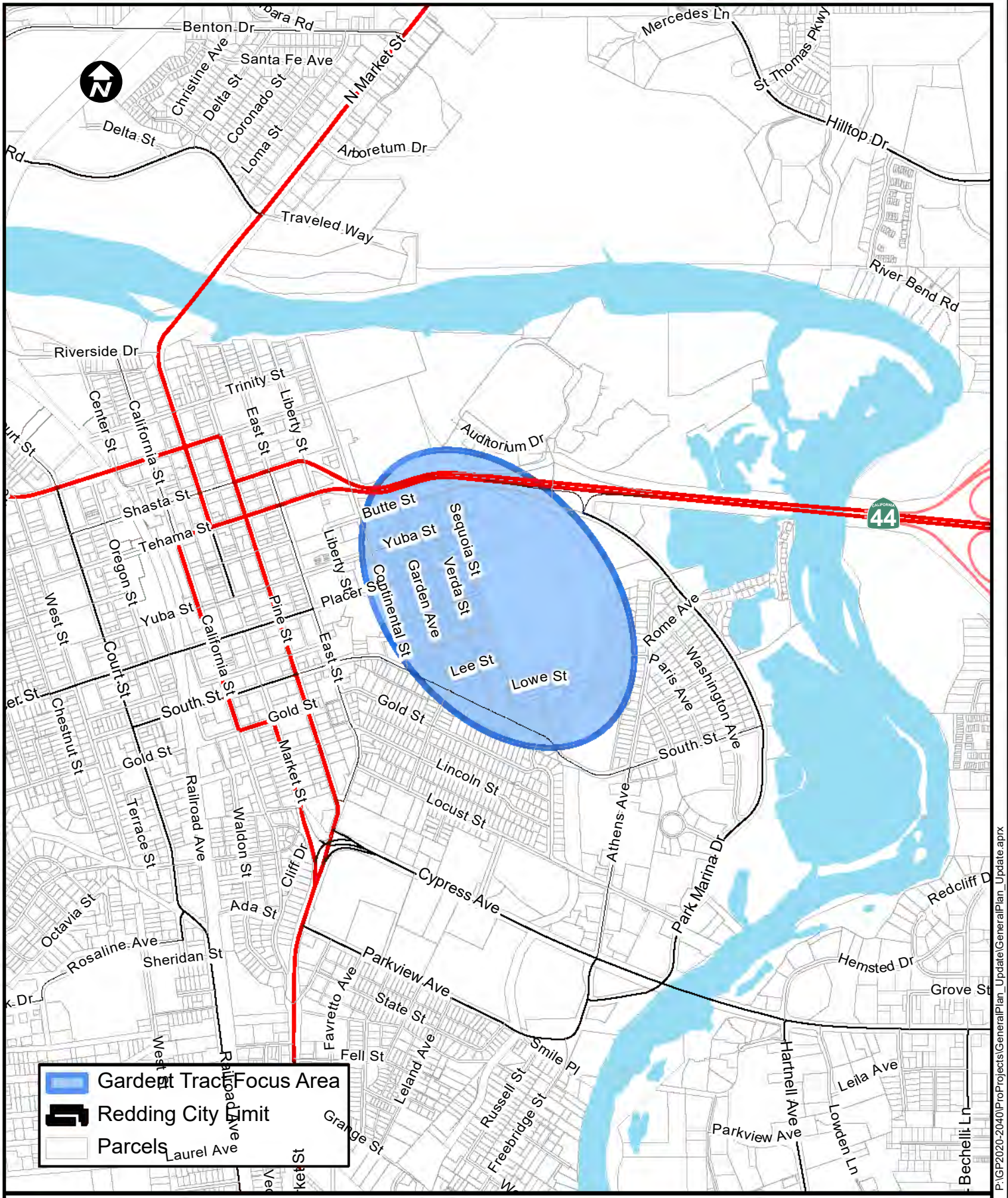
0 1,000 2,000 Feet

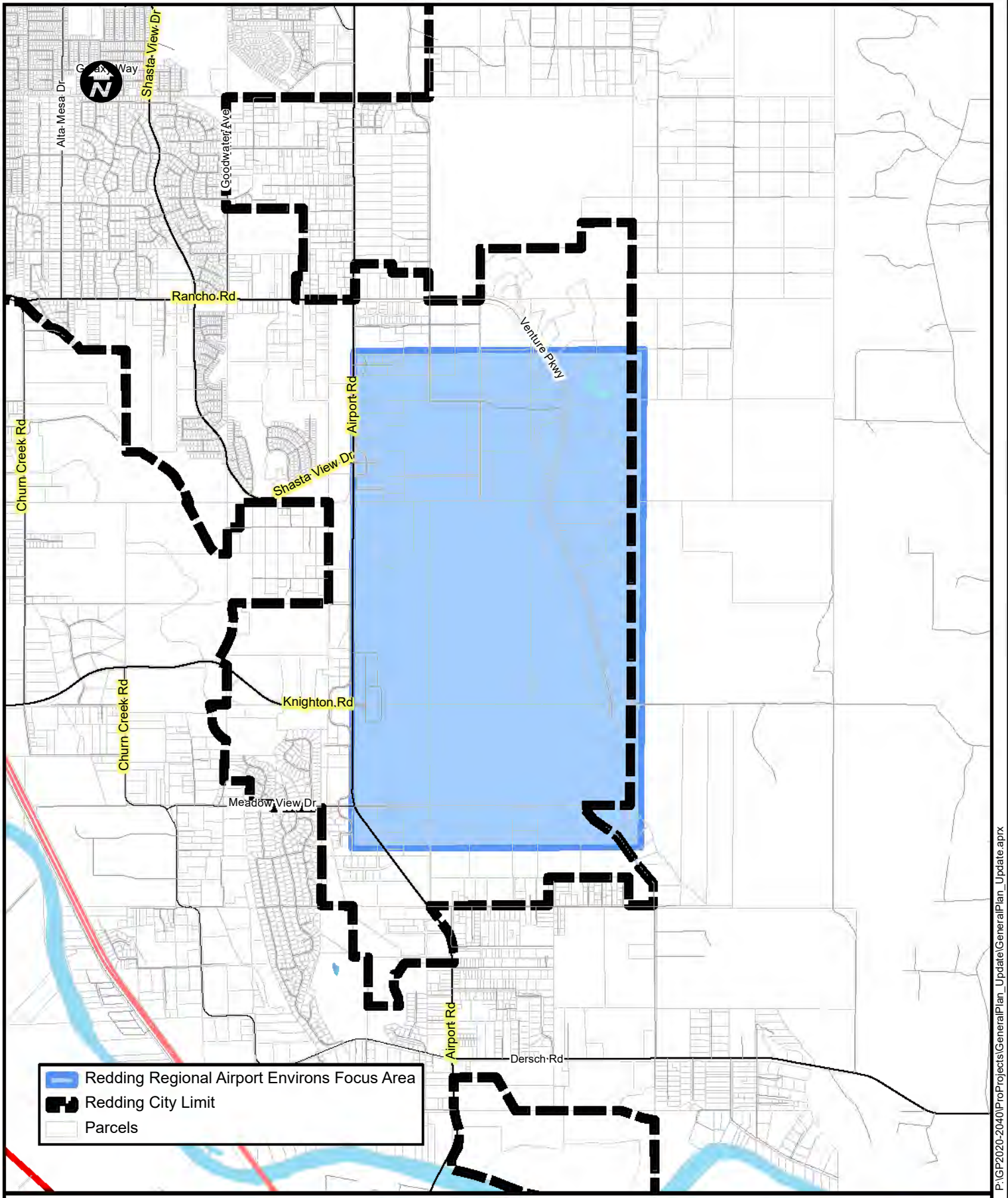
CDD-12
Parkview Neighborhood Focus Area

Print Date: April 13, 2023

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Riverside Dr
Prince St
California St
Center St
Trinity St
Pine St
East St
Gilbert St
Market St
N Court St
Eleventh St
Eureka Way
Division St
Oregon St
Center St
Court St
Shasta St
Rose Ave
Tehama St
Caliornia & Trinity St Focus Area
Redding City Limit
Parcels
US Feet
0
250
500
CDD-13
California/Trinity Focus Area
Print Date: April 13, 2023
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Benton Dr
Santa Fe Ave
Christine Ave
Delta St
Coronado St
Loma St
N Market St
Arboretum Dr
Traveled Way
Mercedes Ln
St Thomas Pkwy
Hilltop Dr
River Bend Rd
Riverside Dr
Center St
California St
Trinity St
East St
Liberty St
Auditorium Dr
Shasta St
Tehama St
Butte St
Yuba St
Sequoia St
Verda St
Garden Ave
Continental St
Placer St
Oregon St
West St
Court St
Pine St
Lee St
Lowe St
Rome Ave
Paris Ave
Washington Ave
South St
Gold St
Chestnut St
Railroad Ave
Terrace St
Waldon St
Market St
Cliff Dr
Lincoln St
Locust St
Athens Ave
Park Marina Dr
Cypress Ave
Redcliff D
Octavia St
Rosaline Ave
Sheridan St
Ada St
Parkview Ave
Favretto Ave
State St
Fell St
Leland Ave
Russell St
Freebridge St
Smile Pl
Hemsted Dr
Grove St
Hartnell Ave
Leila Ave
Lowden Ln
Bechelli Ln
Grange St
Laurel Ave
Garden Tract Focus Area
Redding City Limit
Parcels
44
0
0.25
0.5
Miles
CDD-14
Garden Tract Focus Area
Print Date: April 13, 2023
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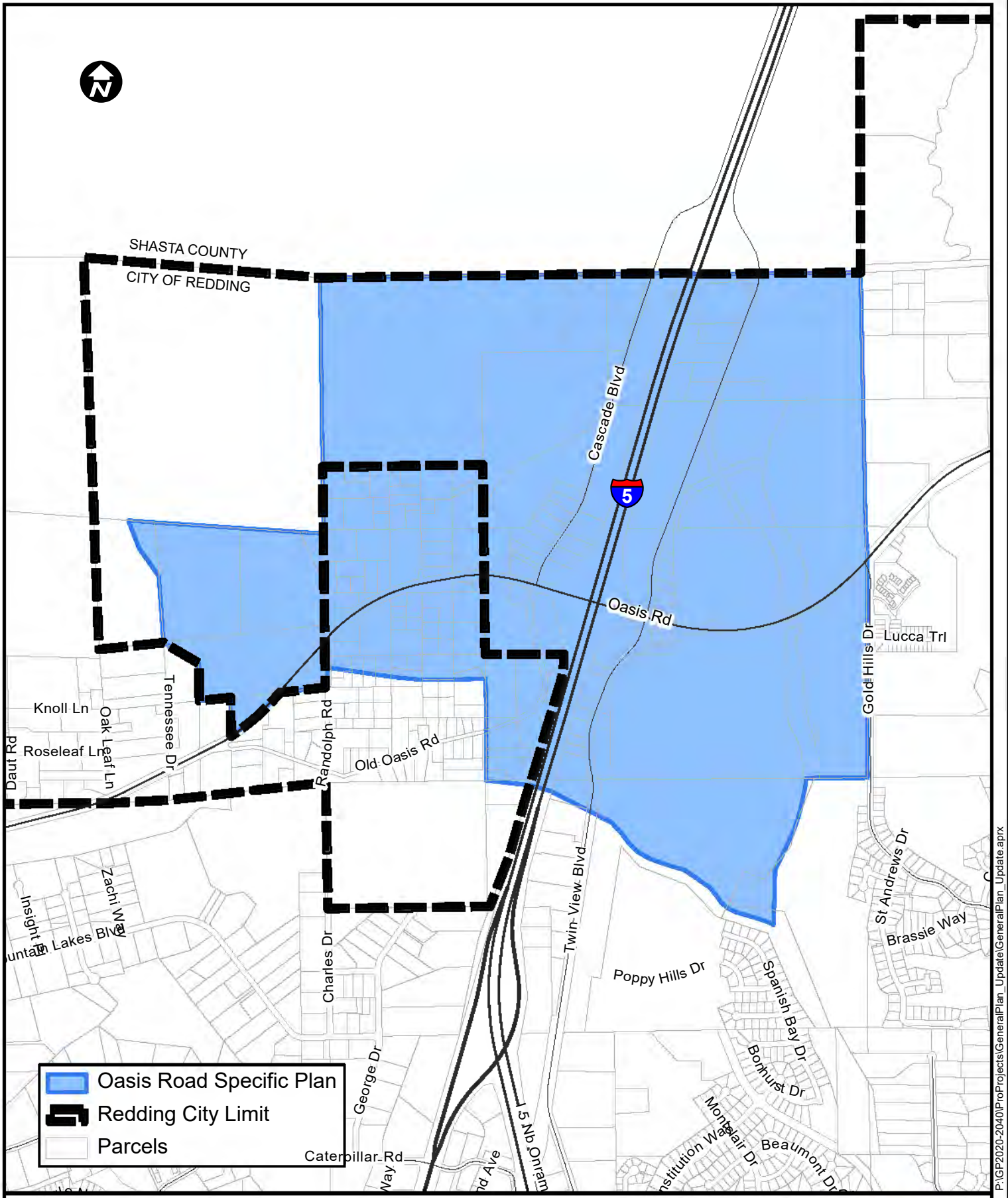


0 0.5 1 Miles

CDD-15
Redding Regional Airport
Environs Focus Area

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SHASTA COUNTY
CITY OF REDDING
Cascade Blvd
5
Oasis Rd
Lucca Trl
Gold Hills Dr
Knoll Ln
Oak Leaf Ln
Tennessee Dr
Roseleaf Ln
Daut Rd
Randolph Rd
Old Oasis Rd
Zachi Way
Insight
Lakes Blvd
Charles Dr
George Dr
Twin View Blvd
Poppy Hills Dr
St Andrews Dr
Brassie Way
Spanish Bay Dr
Bonhurst Dr
Montclair Dr
Beaumont Dr
Caterpillar Rd
5 Nb Onramp
Oasis Road Specific Plan
Redding City Limit
Parcels
Miles
0
0.25
0.5
CDD-16
Oasis Road Specific Plan
Print Date: April 13, 2023
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Public Review Draft Transportation Element

The Transportation Element outlines the existing circulation system within the City of Redding and its designated Sphere of Influence (SOI), and provides goals and policies to direct implementation programs to enhance mobility and efficiently serve existing and future land uses.

The Transportation Element supports regional and statewide efforts to reduce greenhouse gas emissions and vehicle miles traveled (VMT), complement environmental justice efforts, and improve public health.

A key goal of the Transportation Element is the provision of a well-connected network of "Complete Streets" that accommodate multi-modal mobility, provide access to land uses and support the City's economic and sustainability goals. The Transportation Element ensures that transportation and land use decisions are coordinated and promote the safe and efficient transport of goods, make efficient use of existing facilities, and protect environmental quality.

Introduction

The Transportation Element addresses the street and transportation network and the movement of people and goods within the City of Redding. It establishes a plan for the transportation system to serve all members of the community. The transportation system shapes community life by linking friends to friends, people to jobs, homes to shopping, businesses to supplies, and families to entertainment. As such, the Transportation Element provides goals, policies, and implementation measures to guide the prioritization of future investments and maintenance.

Statutory Requirements

The Transportation Element meets State General Plan law, California Complete Streets Act requirements, and supports statewide goals that aim to reduce vehicle miles traveled (VMT).

The Transportation Element (referred to by the Government Code as the Circulation Element) provides the necessary framework to guide the growth and development of the Planning Area's transportation-related infrastructure and integrates land use and transportation planning by ensuring that all existing and future developments have adequate multi-modal access and circulation.

Authority

California law mandates the development of a Circulation Element as part of the General Plan. The Circulation Element must contain the "general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities," all correlated with the land use element of the General Plan per Government Code Section 65302(b). In addition, the General Plan must incorporate "Complete Streets" policies, as described below.

Utility-oriented facilities such as energy, water, sewage, storm drainage, solid waste, and communications are addressed within the Public Facilities and Services Element of the City of Redding General Plan.

Complete Streets Act

The term "Complete Streets" refers to a balanced, multimodal transportation network that meets the needs of all users of streets – including bicyclists, persons with disabilities, motorists and passengers, users of personal mobility devices such as scooters and skateboards, movers of commercial goods, pedestrians, public transit, and seniors. A "Complete Street" provides safe and convenient travel in a manner that is suitable to the local users.

The Transportation Element is consistent with the California Complete Streets Act (AB 1358), adopted in 2008, which requires that cities and other public agencies incorporate "Complete Street" policies when updating the General Plan Circulation Element. Complete Streets make travel safe for all users. Every street does not need to provide dedicated space to all users, but the network must accommodate the needs of all users.

Economically, Complete Streets can help revitalize communities and can give people the option to lower transportation costs by using transit, walking, or bicycling rather than driving to reach their destinations. The City of Redding has a few critical corridors that are managed by the California Department of Transportation (Caltrans). Caltrans is actively engaged in implementing its Complete Streets policy in all planning, programming, design, construction, operations, and maintenance activities for the State Highway System. The provision of safe mobility for all users contributes to the Caltrans vision: "…improving mobility across California." The successful long-term implementation of this vision is intended to result in diverse options for transporting people from one place to another, less traffic congestion and greenhouse gas emissions, more walkable communities (with healthier, more active people), and fewer barriers for older adults, children, and people with disabilities.

Capital Improvement Programs

California Government Code Section 65401 specifies public works projects must conform with the General Plan. In practice, this requires that the City, during each adoption of the Five-Year Capital Improvement Program (CIP), make findings that the proposed City of Redding Five-Year CIP is in conformance with the General Plan, including the Transportation Element.

Vehicle Miles Traveled and SB 743

The Transportation Element is consistent with Senate Bill (SB) 743, which was passed by the California Legislature in 2013 and led to changes to the California Environmental Quality Act (CEQA) regarding the analysis of transportation impacts that took effect in 2020. Transportation impact analysis under CEQA is no longer based on level of service (LOS), which focused on motor vehicle delay. The new CEQA standards require that transportation impacts associated with the development be assessed primarily based on the effects on VMT.

Rates of VMT are typically lowest in compact, walkable, and mixed-use areas. Higher rates of VMT tend to occur in suburban or rural areas with low population densities and longer distances to activity centers. Therefore, efforts to reduce VMT often focus on encouraging infill development. Similarly, SB 743 aims to encourage infill development and a diversity of land uses instead of sprawl, and to promote multi-modal transportation networks that provide efficient access to destinations and improve public health through active transportation.

While LOS is no longer relevant for CEQA purposes, LOS-based performance goals remain relevant for non-CEQA planning purposes and as a tool for the City to ensure its roadway system meets the expectations of the community that are discussed under the heading Motor Vehicle Traffic.

Regional Transportation Planning

California courts have recognized that general plans must reflect the regional context. The Transportation Element must, therefore, account for both regional transportation plans and, in some cases, congestion management plans. Metropolitan planning organizations and regional transportation planning agencies prepare regional transportation plans in cooperation with the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Caltrans, the Air Resources Board, the Department of Housing and Community Development, and other stakeholders, including system users.

The purpose of the regional transportation plan (RTP) is to establish regional goals; identify present and future transportation needs, deficiencies, and constraints; analyze potential solutions; estimate available funding; and propose investments. In most regions in California, the RTP includes a sustainable community strategy (SCS) that aligns transportation investments with a land use pattern designed to reduce regional greenhouse gas emissions. To be eligible for federal and state funding, transportation projects must be consistent with the adopted RTP, including an applicable SCS.

RTP/SCS for Shasta County Region

The Shasta Regional Transportation Agency (SRTA) is the federally-designated metropolitan planning organization (MPO) and state-designated regional transportation planning agency (RTPA) for the Shasta County region. Every four years, SRTA prepares and adopts the Regional Transportation Plan & Sustainable Community Strategy for the Shasta Region (Shasta RTP/SCS), a comprehensive RTP with an SCS covering a minimum 20-year planning horizon.

The SCS addresses emission reduction targets and identifies Strategic Growth Areas (SGAs) where various strategies can be focused to effectively reduce per capita VMT and associated greenhouse gas emissions. The urban core area in the City of Redding was identified as a Strategic Growth Area, as shown in Figure 2.

Local Mobility Setting

How people move from one place to another is an important indicator of the success of a transportation system. This section summarizes travel characteristics associated with the Redding transportation network by gauging its current performance and tailoring projects and programs that will provide benefits to the community.

Redding has long been the most northerly crossroads in California, a meeting place of east-west and north-south travel. Located where the Central Valley meets the mountains, Redding developed as the most important hub north of Sacramento. Its locational advantages and the historical transportation routes into surrounding counties have made the Redding area the commercial center for north-central and northeastern California, and, today, it serves as regional headquarters for a host of businesses and governmental agencies.

Residents living in the City of Redding generate lower rates of VMT per capita than other areas of Shasta County because there is greater proximity to jobs, commercial areas, and services such as public transit. Nonetheless, the Shasta RTP/SCS notes that the Redding urban area has a relatively low population density (2 persons per acre) relative to comparable cities outside of Shasta County (for example, Chico, which has a population density of 6 persons per acre).

Travel Modes

The U.S. Census Bureau American Community Survey (ACS) provides data on the mode by which people travel to/from work (or commute). As shown in Table 1, most employed Redding residents commute via automobile to and from work. However, the ACS does not account for non-commute trips, including utilitarian or recreational trips, or multi-modal trips (e.g., walking to a bus stop or walking after driving to a destination). The ACS data also does not represent travel patterns for trips made by youth and trips to and from schools and colleges in the area.

Table 1: Work Commute Travel Modes

Jurisdiction	Drive Alone	Carpool	Transit	Walk	Bicycle	Work at Home	Taxi, Motorcycle or Other
Redding	81.4%	8.2%	1.0%	2.0%	1.1%	5.1%	1.1%

Source: United States Census Bureau, American Community Survey, 2015

Motor Vehicle Traffic

Daily traffic volumes on key motor vehicle routes within Redding are summarized in Table 2. The primary regional motor vehicle facility is the Interstate 5 (I-5) freeway that carries roughly 69,000 daily vehicles near Cypress Street in Redding. Cypress Street carries over 30,000 daily vehicles across the Sacramento River east of downtown, while many of Redding's key streets carry between 10,000 to 18,000 daily vehicles. To put the daily volumes in perspective: streets with one lane per direction can typically accommodate roughly 20,000 daily vehicles, while streets with two lanes

per direction can accommodate over 30,000 daily vehicles, provided that left-turn pockets are provided where appropriate.

A driver's perception of traffic flow is directly related to expectations. Motorists may expect and accept occasionally heavy traffic, but will not accept continuous delays throughout their course of travel. In Redding, most drivers have come to expect virtually free-flow traffic, unlike what they may have encountered in larger cities in which they have either resided or visited. But it is important to realize that, while all streets are designed to carry traffic, they are not all the same. Some serve major commercial corridors and are directly linked to Interstate 5 and the State highway system, including State Routes 44, 273, and 299. Other streets function as links between places of work and residential areas. Still others provide basic organization to areas, like Downtown with its "grid" system, and have their flavor and provide different driving experiences. It is not reasonable to expect that every street should have free-flow traffic 24 hours a day.

The speed of vehicles traveling in residential neighborhoods is a very real concern. Although residential streets are typically designed for a speed of 25 MPH, the average speed along the City's residential streets is more than 30 MPH. On certain streets, the average speed is considerably higher. Excessive speed not only poses serious pedestrian safety concerns, but it also affects the residents' perception of the general quality of life within neighborhoods. Speed humps, street closures, and diversions are important tools but must be used appropriately given each neighborhood's unique environment. These devices, if not properly designed, may cause longer response times for emergency vehicles and reduce access options. Speed can be controlled through several means, including increased enforcement; traffic-calming devices such as traffic circles and neck-downs; speed tables; and narrowing the "pavement width" either physically or by using visual cues such as striping to narrow the traffic lanes of the street. Reducing the width of motor vehicle lanes is an effective strategy to reduce travel speeds in many cities, with 10- to 11-foot lane widths recommended for City streets, consistent with National Association of City Transportation Officials (NACTO) guidelines. Such provisions are an integral component of new neighborhoods as addressed in the Community Development and Design Element.

Table 2: Daily Traffic Volumes

No	**Street / route**	**Location**	**Avg Daily Traffic**	
			Baseline	**2045**
1	Interstate 5 (I-5)	N of Twin View Blvd	39,500	51,100
2	Interstate 5 (I-5)	N of SR-299 / S of Twin View Blvd	46,500	58,100
3	Interstate 5 (I-5)	N of SR-44 / S of SR-299	60,000	75,000
4	Interstate 5 (I-5)	S of SR-44 / N of Cypress Ave	69,000	88,600
5	Interstate 5 (I-5)	S of Cypress Ave / N of Churn Cr Rd	61,000	80,000
6	Interstate 5 (I-5)	S of Churn Creek Rd	58,000	78,200
7	SR-44	E of Butte St / W of I-5	56,000	66,200
8	SR-44	E of I-5 / W of Hilltop Dr	48,000	55,700
9	SR-44	E of Hilltop Dr / W of Victor Ave	37,000	45,900
10	SR-44	E of Victor Ave	35,000	39,100
11	SR-44	Shasta View Dr	23,500	29,500
12	SR-44	Airport Rd	16,600	20,600

13	SR-273	N of Lake Blvd	12,700	14,000
14	SR-273	N of Benton Dr/S of Lake Blvd	20,800	23,500
15	SR-273	S of Market/Pine	16,800	19,100
16	SR-273	S of Buenaventura Ave	19,200	22,500
17	SR-273	S of S. Bonnyview Rd	21,800	25,000
18	SR-299	W of I-5 / E of SR-273	20,300	25,400
19	SR-299	E of I-5 / W of Hawley Rd	21,000	25,500
20	SR-299	E of Hawley Rd/W of Old Oregon Tr.	11,600	14,100
21	SR-299	E of Old Oregon Tr.	9,700	11,000
22	Airport Rd	N of Rancho Rd	12,100	16,400
23	Airport Rd	S of Rancho Rd	9,900	13,800
24	S. Bonnyview Rd	west of I-5 ramps	21,600	26,000
25	S. Bonnyview Rd	east of I-5 ramps	23,700	29,300
26	S. Bonnyview Rd	west of Churn Creek Rd	21,100	25,700
27	Buenaventura Blvd	N of Placer St	9,300	10,500
28	Buenaventura Blvd	S of Placer St	9,400	11,500
29	California St	btw Shasta & Tehama St	6,100	6,700
30	Churn Creek Rd	S of SR-299 ramps	13,100	15,800
31	Churn Creek Rd	N of S Bonnyview	13,000	14,900
32	Churn Creek Rd	E of S Bonnyview	13,400	17,800
33	Cypress Ave	W of Hartnell Ave	27,900	35,900
34	Cypress Ave	E of Hartnell Ave	19,000	22,200
35	Cypress Ave	E of I-5 / W of Hilltop Dr	31,200	36,800
36	Cypress Ave	E of Hilltop Dr / W of Larkspur Ln	21,000	25,100
37	Hartnell Ave	W of Bechelli Ln	12,000	12,700
38	Hartnell Ave	E of Bechelli Ln	13,600	13,800
39	Hartnell Ave	E of Churn Creek Rd	18,400	19,500
40	Hartnell Ave	W of Shasta View Dr	10,000	11,400
41	Hartnell Ave	E of Shasta View Dr	5,900	7,100
42	Hawley Rd.	N of SR-299 ramps	6,400	7,800
43	Hilltop Ave	N of Cypress Ave	12,100	13,300
44	Old Oregon Trail	S of SR-299 ramps	7,400	10,100
45	Placer St	E of Buenaventura Blvd	12,500	15,300
46	Placer St	W of Buenaventura Blvd	13,900	14,100
47	Rancho Rd	W of Airport Rd	6,200	9,100
48	Victor Ave	N of Rancho Rd	3,600	5,100

Bicycling & Walking

Walking and bicycling, jointly referred to as “active transportation,” are key components of the City of Redding transportation system. Active transportation not only supports the health, vitality, and prosperity of the community but directly supports the quality of life for residents.

Biking as a form of transportation has been popular in the City of Redding for many years. The earliest bicycle route planning document was a regional bikeway plan adopted in 1984, and the

City adopted bicycle master plans in 1998 and 2010, and further updated in 2018 with the adoption of the Redding Active Transportation Plan (developed in conjunction with SRTA's GoShasta Regional Active Transportation Plan). The purpose of the Active Transportation Plan is to lay the foundation for the establishment of a safe, efficient, comfortable, and connected active transportation network (i.e., pedestrian and bicycle networks/facilities) that is not only used but intrinsic to the lifestyle of Redding residents and visitors. The Active Transportation Plan is a living document that is intended to be updated every 4 to 7 years.

The Active Transportation Plan includes the following four goals:

- Goal 1: Strive to develop a highly connected and comfortable active transportation network.
- Goal 2: Work to increase the number of walking and bicycling trips.
- Goal 3: Work to increase safety and mobility for pedestrians and bicyclists.
- Goal 4: Promote an active transportation culture that benefits the community.

Existing Bicycle & Pedestrian Networks

Redding is well known for its Sacramento River Trail. This nationally-recognized, multi-use facility is a major recreational opportunity that has become the backbone of the active transportation network. Over the last 30 years, the trail was extended to over 20 miles in length and now creates a viable commuter corridor that connects neighborhoods, schools, parks, bikeways, open spaces, and major commercial areas. The community is outspoken in its desire to see this trail, or similar facilities, extended into additional neighborhoods, the Downtown Core, and various commercial areas. Any improvements that result from this plan should follow the lead of the Sacramento River Trail Project in contributing to the aesthetic and cultural value of the community.

The existing bicycle network, shown in Figure 3, is comprised of shared-use paths, bike lanes, and bike routes. Bicycle support facilities and amenities include bicycle parking, bicycle shops, and repair stations (e.g., a place to put air in low tires or fix a flat tire). Bicycle racks are concentrated in Downtown Redding and near shopping or commercial centers. Additionally, there are five bicycle shops and one repair station. Planned bicycle improvements identified in the Active Transportation Plan are incorporated into the Circulation Plan described in this element.

The pedestrian network, shown in Figure 4, shows sidewalks and paths that make up Redding's pedestrian facilities. Pedestrian facilities include trails, curb ramps, crosswalks, crossing aids (e.g., pedestrian crosswalk indicators), traffic control devices aimed at facilitating pedestrian crossings (e.g., pedestrian crossing signs/beacons), grade-separated crossings, and other infrastructure to encourage and improve conditions for walking and accessibility for all, including disabled persons, the elderly, and even parents with strollers.

The sidewalk network is generally well connected in Downtown Redding and in areas adjacent to and within many of the retail centers and within most of the residential neighborhoods. However, gaps in the sidewalk network are evident in locations between neighborhoods. Planned pedestrian improvements identified in the Active Transportation Plan are incorporated into the Circulation Plan described in this element.

Public Transit Service

Public transportation in the Redding area is provided by the Redding Area Bus Authority (RABA) which provides both fixed-route and demand-response transit services. RABA was formed in 1976 by a joint powers agreement (JPA) between the City of Redding and the County of Shasta to provide public transit services within the Greater Redding Area. RABA began service in 1981 and has expanded over the years to meet the increased needs of the community. The JPA was amended in 1998 to include the City of Anderson and the City of Shasta Lake. RABA's primary source of revenue is Transportation Development Act (TDA) funds. Most RABA riders are commuters who are highly transit dependent.

The RABA Downtown Transit Center is located in Downtown Redding and is the main transit hub in Shasta County, serving as a point of connection between RABA and other interregional bus services (e.g., Amtrak Thruway, Greyhound, Modoc Sage Stage, and Trinity Transit).

Currently, RABA fixed-route service consists of ten local routes and three express routes. The local routes operate 12 or 13 service hours per day, Monday through Friday, starting at either 6:00, 6:30, or 7:00 a.m. Saturday service commences three hours later than the Monday through Friday start time but ends at the same time. RABA does not currently provide Sunday service. RABA's demand-response transportation service provides origin and destination transportation for individuals who, because of a disability, are not able to utilize a regularly scheduled fixed-route bus service. RABA's demand-response service provides Americans with Disability Act (ADA) Paratransit service.

Figure 5 illustrates the fixed-route RABA bus routes that service the Redding community. All local routes depart from one of three RABA transit centers – six routes depart from the Downtown Transit Center, three from the Masonic Transfer Center, and five local routes from the Canby Transfer Center (TC). These routes all complete a loop in the span of one hour and return to the starting point at the respective transit center with a couple of exceptions.

Safety & Collisions

A Local Road Safety Plan (LRSP) was developed for the City of Redding in February 2022 and provides a citywide analysis of the roadway system and details the current collision patterns and high-risk roadway characteristics (system analysis). In addition, the plan identifies safety countermeasures to help mitigate the City's primary crash type trends and reduce the overall collision severity.

Five years of collision data (2015-2019) from the Statewide Integrated Traffic Records System (SWITRS) and Transportation Injury Mapping System (TIMS) was evaluated for the City

roadways. Within the five-year period, a total of 3,468 collisions were reported within the City of Redding, specifically 2,364 collisions on City streets and 1,104 collisions on Caltrans roadways. Of the 2,364 collisions on City streets, twenty-four (24) resulted in fatalities and ninety-three (93) resulted in severe injuries. Figure 6 shows the density of collisions on City roadways. Unsafe speed was the most common violation category in the noted collisions. The City intersections and segments were ranked based on a safety assessment to weigh collisions and capture the relative severity in equivalent property damage, as summarized below. In addition, the collision density of Caltrans facilities in Redding is shown in Figure 8.

Intersections with highest rates of collisions:

1. Churn Creek Rd / Hartnell Ave
2. South St / California St
3. Hartnell Ave / Bechelli Ln
4. Airport Rd / Preserve Blvd
5. Butte St / Continental St
6. Market St / Riverside Dr
7. Hartnell Ave / Northwoods Way
8. Churn Creek Rd / E Cypress Ave
9. Victor Ave / Hartnell Ave
10. Hilltop Dr / E Cypress Ave
11. E Cypress Ave / Bechelli Ln

City street segments with the highest rates of collisions:

1. Churn Creek Rd (Presidio St to S Bonnyview Rd)
2. E Cypress Ave (Park Marina Dr to Churn Creek Rd)
3. Hilltop Dr (n/o Browning St to Maraglia St)
4. Bechelli Ln (E Cypress Ave to n/o 3rd St)
5. W Cypress Ave (Market St to Park Marina Dr)
6. Railroad Ave (South St to Buenaventura Blvd)
7. Hartnell Ave (Goodwater Ave to Airport Rd)
8. Hilltop Dr (n/o Redding Hilltop Apartments to St. Thomas Pkwy)
9. Hartnell Ave (Northwoods Way to Kenco Ave)
10. S Bonnyview Rd (S Market St to Churn Creek Rd)

Circulation Plan

This section of the Transportation Element describes the Complete Streets and bikeway network plan, including street and bikeway classifications, and street design guidelines. The plans and guidelines support planned improvements to the City's street network by 2045; these improvements are deemed necessary based on traffic computer modeling that was conducted in 2022. The City of Redding desires to improve the transportation network of Complete Streets that provide safe multimodal transportation choices for independent mobility, encourage healthy active living, and support greater social interaction. The Complete Streets network provides safe and convenient travel that serves all users.

Street Classification System

City streets are classified as either arterials, collectors, or local streets as defined below. In addition, Caltrans facilities within Redding include two additional classifications: freeways and expressways.

- ***Arterial Streets***. Arterials provide the principal network for citywide travel by all modes of travel, including walking, bicycling, motor vehicle, and transit. They also provide regional connections. Most commercial land uses in Redding are accessed directly via arterial streets. Arterial streets in Redding generally have one or two motor vehicle travel lanes per direction and sidewalks on both sides. Bicycle facilities on arterial streets should consist of buffered bicycle lanes or separated bikeway facilities wherever feasible while recognizing that this will be difficult to achieve on currently developed roadways without substantial modifications in lane configurations, striping, sidewalk modifications, right-of-way limitations, and/or other improvements. Arterial streets are further subdivided into types of arterials to reflect the land use and neighborhood context specific to each type. The ultimate, ideal design of these roadways includes the following attributes:

    - ***Principal Arterials*** in Redding will typically provide two to three automobile lanes per direction by 2045, with wide sidewalks and bulb-outs at crossings to provide for low-stress pedestrian travel. Protected bikeways should be provided where feasible on principal arterials. Measures to enhance transit service are also encouraged, including queue jump lanes and bus stop amenities. Right-of-ways necessary to accommodate pedestrian, bicycle, and transit services, projected traffic, and emergency access/evacuation needs will generally range from 84 feet to 135 feet.

    - ***Minor Arterials*** generally will provide one to two automobile lanes per direction by 2045, plus a center left-turn lane or median, wide sidewalks on both sides and bulb-outs at crossings to allow for low-stress pedestrian travel. Protected bikeways should be provided where feasible on minor arterials. Right-of-ways will generally range from 84 feet to 96 feet.

  Because of Redding's potential for growth over the decades beyond the horizon of this General Plan, sufficient rights of way for the City's identified principal and minor arterial streets and intersections should be obtained in advance of need, where appropriate, to accommodate the diverse need of these facilities beyond the needs of 2045. Certain streets should also be planned and constructed to address current needs for ingress/egress during emergencies such as wildfire and flooding events.

- ***Collector Streets***. Collectors provide connections for all modes of travel within and between residential areas and activity centers, as well as providing direct access to land uses. Collectors also provide connections between arterial and local streets. Collector streets in Redding have one motor vehicle travel lane per direction, with sidewalks on both sides at buildout. Protected bikeways or buffered bicycle lanes should be provided

wherever feasible on collector street segments. Right-of-ways will generally range from 60 feet to 96 feet.

- ***Local Streets.*** Local streets provide direct access to abutting properties by all modes of travel. City streets that are not designated as arterials or collectors are local. Bicycle facilities on local streets generally consist of shared travel lanes between motorists and bicyclists. Local streets typically provide sidewalks on both sides and allow on-street parking. Local streets should be designed to encourage low travel speeds and provide "low-stress" travel routes for bicyclists and pedestrians. Right-of-ways will generally range from 28 feet to 60 feet.

- ***Freeways.*** Travelers use freeways for longer trips by motor vehicle, including regional travel as well as crosstown trips within the Redding urban area. Freeways in Redding typically provide 2 to 3 lanes per direction, with grade-separated interchanges. Motor vehicle travel speeds on freeways typically range from 55 to 70 mph.

- ***Expressways.*** Travelers use expressways for regional trips and longer trips within Redding, primarily via motor vehicle, typically with 2 to 3 motor vehicle lanes per direction. Direct access to adjacent properties from an expressway is typically restricted or not allowed. State Route (SR) 273 is classified as an expressway on segments north and south of downtown Redding. Protected bikeways or multi-use paths should be provided where feasible adjacent to expressway segments. Right-of-ways will generally range from 110 feet to 150 feet.

Figure 9 illustrates the 2045 buildout circulation plan and street classification for each segment. Table 3 provides guidelines and prioritization by mode of travel for each City street classification.

Table 3: City Street Classifications & Guidelines

Classification	Mode Priority	Description and Guidelines	Motor Vehicle Lanes	Bicycle Provisions
Principal Arterial	Bicycle: ❶ Pedestrian: ❶ Transit: ❶ Vehicle: ❶	*Major thoroughfare with transit service and mixed commercial and retail frontages.* Provides regional access to adjacent land uses and safe crossings for all travel modes along a regional transportation corridor. Provides enhancements for walking, bicycling, and transit, including bulb-outs, where feasible, to reduce pedestrian crossing distances. On-street motor vehicle parking may be permitted where feasible to enhance access to adjacent uses.	2-3 motor vehicle lanes per direction (recommend-ed lane width of 10-11 feet)	Separated bikeway (Class IV) where feasible otherwise buffered bike lanes.
Minor Arterial	Bicycle: Pedestrian: ❶ Transit: ❶ Vehicle: ❶	*Arterial streets with commercial and residential frontages that also serve through trips connecting arterials for multiple modes.* Distributes trips to	1-2 motor vehicle lanes per direction plus a center	Separated bikeway (Class IV) where

	❶	residential areas. Balances the needs of motor vehicles, transit, bicycles, and pedestrians. On-street motor vehicle parking is typically permitted, but intrusion of commercial parking demand on to Neighborhood Arterial segments is discouraged.	median / left-turn pocket (recommend-ed lane width of 10-11 feet)*	feasible otherwise buffered bike lanes.
Collector Street	Bicycle: ❶ Pedestrian: ❶ Transit: ❸ Vehicle: ❶	*Collector streets connect arterial and local streets while also providing direct access to adjacent land uses.* Balances the needs of bicyclists, motorists and pedestrians.	1 motor vehicle lane per direction (recommend-ed lane width of 10-11 feet)	Separated bikeway (Class IV) or buffered bike lanes (Class II) where feasible
Local Street	Bicycle: ❷ Pedestrian: ❶ Transit: ❸ Vehicle: ❷	*Neighborhood streets with residential, commercial retail or mixed-use frontages that provide direct local access to properties.* Pedestrian circulation and access to properties is prioritized. On-street parking is typically permitted. Intrusion of commercial parking demand on to residential local street segments is discouraged.	1 lane per direction (recommend-ed lane width of 10 feet).	Shared travel lanes with motor vehicles
❶ = High Priority ❷ = Medium Priority ❸ = Low Priority				

***** Certain streets may require additional lanes or width to accommodate emergency access and/or property access.

Traffic Planning

Land use planning can have a significant impact on managing local traffic problems and, to some extent, regional problems. For instance, this General Plan includes land use policies aimed at giving more residents the choice of living closer to their jobs. It also contains policies supporting mixed-use developments, higher-density development in the Downtown and other areas, and locating neighborhood shopping facilities closer to residential neighborhoods. These policies can be found in the Community Development and Design Element. But these strategies alone will not solve existing congestion problems, nor will they prevent additional circulation problems that may impact the community's concerns regarding the safety and convenience of the City's streets.

Traffic engineers use quantitative measures known as Level of Service (LOS) to describe traffic conditions. Factors taken into consideration include the volume of traffic, street and intersection design, signal timing, and other variables. LOS is normally used to describe peak-hour conditions, specifically the morning or afternoon hour when traffic is the heaviest.

This General Plan uses a multilevel approach to assigning LOS expectations. It recognizes that the same level of service for all streets is not appropriate or necessary. For example, moving traffic through Downtown without delay detracts from efforts to establish an active pedestrian-friendly area.

The following LOS thresholds are provided to guide the future development of the major components of the vehicle transportation network. The City Council may approve requests for deviations from the LOS thresholds, in unusual or exceptional circumstances, as it determines

necessary and appropriate. Note that these thresholds reflect community expectations for its roadways and are not appropriate for evaluation of impacts under CEQA which are based on Vehicle Miles Traveled (VMT).

- LOS "C"– "acceptable delays"–Most arterial streets and their intersections.

- LOS "D"– "tolerable delays"–The Downtown area where vitality, activity, and pedestrian, bicycle, and transit use are primary goals. Streets within the state highway system and interchanges and river-crossing street corridors whose capacity is affected by adjacent intersections.

It is important to note that there may be roadways where LOS thresholds cannot be maintained given various constraints to increasing their capacity. Cypress Avenue in proximity to the Interstate 5 interchange is an example. Without acknowledging such conditions and making allowances for LOS to be exceeded, virtually every project that adds traffic to such roadways would require the proposed City Council "exemption" of this Element to be pursued which is not only time consuming but, given the lack of options available to mitigate the LOS on these roadways, would lack purpose.

Bikeway Network Plan

Increasing the convenience and use of bicycling as a daily form of transportation is a key goal of the Transportation Element. Increasing rates of bicycling will produce a number of community benefits including improved health, reduced traffic, less need for costly roadway improvement projects, and improved air quality. Facilities for biking and walking provide recreational opportunities as well. Grant funding sources are often available to implement bikeway improvements.

Types of Bikeway Facilities

There are four classifications of bikeway facilities in California, as defined by the California Department of Transportation (Caltrans):

- ***Multi-Use Paths or Shared Use Paths (Class I Bikeways).*** A path physically separated from motor vehicle traffic by an open space or barrier, and either: within a road right-of-way or within an independent right-of-way used by bicyclists, pedestrians, joggers, skater, and other non-motorized travelers. Because the availability of uninterrupted rights-of-way is limited, this type of facility may be difficult to locate and more expensive to build relative to other types of bicycle and pedestrian facilities, but less expensive compared to building new roadways.

- ***Bicycle Lanes (Class II Bikeways).*** A portion of a roadway that has been set aside by striping and pavement markings for the preferential or exclusive use of bicyclists. Bicycle lanes are intended to promote an orderly flow of bicycle and vehicle traffic. This type of facility is established by using the appropriate striping, legends, and signs. Buffered bike

lanes provide additional separation from vehicles with a striped buffer section, that does not include any vertical separation.

- ***Bicycle Boulevard (Class III Enhanced Bikeway).*** In addition, many cities have installed an enhanced type of Class III Bicycle Route, referred to as a "Bicycle Boulevard." Bicycle Boulevards are generally installed on relatively low-volume and low-vehicle speed streets and often include elements to facilitate bicycle travel, such as reorienting stop signs to reduce delays to cyclists, and/or discouraging use by motorists making cut-through trips, such as through the inclusion of traffic calming measures.

- ***Separated Bikeway (Class IV Bikeways).*** A Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and adjacent vehicle traffic. The physical separation may include flexible posts, grade separation, inflexible physical barriers, or on-street parking. Separated bikeways generally operate in the same direction as vehicle traffic on the same side of the roadway. However, two-way separation bikeways can also be used, usually in lower-speed environments (35 miles per hour or less).

Planned Bikeways

Figure 10 shows the locations of planned bikeways, and Figure 11 illustrates the planned 2045 buildout bikeway network. Planned facilities include separated bikeways or buffered bicycle lanes on most arterial street segments.

Once completed, the bikeway network will connect every neighborhood to the central core of the community, as well as to employment, shopping, cultural, educational, transit, and recreational facilities throughout Redding. Bicycle facilities should be located in public and private development projects, and dedicated bicycle lanes should be included within street rights-of-way. Note that Redding's geographical size, (approximately 60 square miles in 2022), terrain, and considerable variations in temperature and precipitation may impact the use of bikes under certain climatic conditions for some users.

Planned Pedestrian Improvements

Not only does walking provide a good form of exercise, but it can also be an effective commuting mode if complementary land uses are located nearby. In order to be effective, sidewalks and other pedestrian areas need to be reasonably attractive, impart a feeling of safety and separation from vehicles, and be designed for use by all individuals, including those with mobility impairments. These objectives can largely be achieved through facility design. Factors such as sidewalk width and the creation of an attractive separation between the sidewalk and the curb (usually by a maintained landscape strip) can contribute to the quality and perceived safety of the pedestrian's experience. This is particularly important on streets that carry heavy traffic volumes and/or have relatively high vehicle speeds.

The installation of curb ramps in accordance with Americans with Disabilities Act requirements is also important at intersections so that those with mobility impairments can feel comfortable crossing the street and safely return to a sidewalk system. In order to encourage the highest level

of use, pedestrian facilities need to be linked or connected to areas or destination points to which people want to get. These include but are not limited to a neighborhood store, place of employment, neighboring development, educational/recreational facilities, the river, or other creek-side trails. Policies addressing this issue are included in the Community Development and Design Element. The development of the type of pedestrian system described in this section is essential to increasing the number of individuals able to walk throughout the Redding community.

The Circulation Plan includes Pedestrian Improvements identified in the Redding Active Transportation Plan as illustrated in Figure 12.

Goals and Policies

The goals and policies in this section reinforce various policies of the General Plan's Community Development and Design Element, Transportation Element, and Parks, Trails and Recreation Element intended to encourage the development of infill parcels and mixed-use developments that help to lessen reliance on automobiles and to provide pedestrian and bicycle connections between neighborhoods, transit, recreational amenities, schools, employment centers, and services. Together these actions will help to establish a land use and transportation network that is efficient, accessible, and builds on the existing strengths of the Redding community.

Complete Streets

The intent of the following goals and policies is to make travel safe for all users, including bicyclists, pedestrians, motorists, transit vehicles and riders, and people of all ages and abilities. Complete Streets principles are incorporated into the General Plan, consistent with the California Complete Streets Act (AB 1358).

Goal T1: A transportation system that meets the diverse needs of users of all ages and abilities, including safe, efficient, sustainable, and comfortable routes for walking, bicycling, and public transportation to increase the use of these modes of transportation, and enable convenient and active travel as part of daily activities.

T1A – Strive to ensure that where Complete Street infrastructure is constructed, it improves transportation choices for pedestrians, bicyclists, motorists, and public transportation riders and that users of all ages and abilities are considered in the planning, design, approval, construction, and operation of new streets, and the alteration and maintenance phases of existing streets by:

- Including infrastructure that promotes a safe means of travel for all users along the right of way, such as sidewalks, shared-use paths, bicycle lanes (including protected bicycle lanes or buffered bicycle lanes where feasible) or paved shoulders.

- Providing pedestrian and bike connections from developments to adjacent main streets, open space areas, parks, transit stops, schools, commercial and employment centers, and other activity centers as opportunities arise.

- Designing new development to incorporate street connectivity for all users.

- Including new or alteration of existing infrastructure that facilitates safe crossing of the right-of-way for all users, such as accessible curb ramps, high-visibility crosswalks, pedestrian refuge islands, smaller curb radii, corner bulb-outs, pedestrian signals, and bicycle detection at traffic signals where warranted.

- Incorporating features that improve the comfort, convenience, and safety of users, such as pedestrian-oriented/wayfinding signs, pedestrian-scale lighting, benches and other street furniture, bicycle parking facilities, comfortable and attractive public transportation stops and facilities, street trees, landscape, and planting strips.

T1B – Seek funding to establish a systematic Complete Street retrofit program that will effectively alter existing appropriately-identified streets into Complete Streets.

T1C – Update the Redding Active Transportation Plan every four to seven years to ensure successful implementation of the City's planned bicycle and pedestrian networks by undertaking the following:

- Working to identify and prioritize physical improvements that would make bicycle and pedestrian travel safer along current key bicycling and walking routes.

- Pursuing an implementation strategy to construct needed improvements.

- Undertaking improvements as part of street projects where reasonable and feasible.

T1D – Consider requiring that development projects dedicate street rights-of-way and construct both on- and off-site improvements as appropriate to provide access and street connectivity for users of all ages and abilities, mitigate the effects of vehicle miles traveled (VMT) attributable to the project, and not degrade peak-hour LOS below the following adopted thresholds nor conflict with multi-modal performance standards. The City Council may, at its sole discretion, determine that the degradation of LOS is appropriate given the extraordinary circumstances of the project being proposed. The traffic analysis used to establish mitigation or improvement measures shall be based on the regional travel demand model or other City-approved methods. At the option of the City and as may be provided by City ordinance, improvements may be deferred by the City upon approval of a Deferred Improvement Plan which identifies improvements needed, costs, funding sources, and other pertinent data required by the City.

T1E – Strive to complete the planned build-out street network as illustrated on the Circulation Plan map, and ensure that the accompanying design standards, programs, and procedures include Complete Streets implementation as a main focus by undertaking the following measures.

- Review as necessary the City's design guidelines and standard cross-sections for streets, intersections (including roundabouts and traffic circles), pedestrian facilities, bicycle facilities, and transit facilities and revise as necessary to be consistent with National Association of City Transportation Officials (NACTO) and its guidelines regarding Complete Streets.

- Consider establishing performance measures to evaluate multimodal travel conditions for pedestrians and bicyclists, such as Level of Traffic Stress (LTS) criteria, to guide development of the street network.

- Collaborate with the Redding Area Bus Authority (RABA) and other service providers to incorporate infrastructure to assist users in employing multiple modes of transportation in a single trip in order to increase transportation access and flexibility. Examples include but are not limited to, provisions for bicycle and wheelchair access on public transportation, secure bicycle racks at transit stops, and public transportation access to trails and recreational locations.

- Consider the development of a Complete Streets Design Manual that can serve as a guide for public and private development projects that propose new streets or modifications of existing streets.

T1F – Strive to complete the Planned Pedestrian Improvements identified in the Redding Active Transportation Plan, and support the provision of an attractive, safe, and continuous system of sidewalks and other pedestrian facilities by undertaking the following measures where appropriate:

- Seek funding for the design and/or construction of the sidewalk, path, and crossing improvements identified in the Active Transportation Plan. Focus on securing funds to match federal and State grant program opportunities.

- Where feasible and appropriate, seek to provide pedestrian-oriented features such as benches, enhanced landscape, and trash receptacles in commercial areas, including the Downtown and Redding Riverfront Specific Plan areas.

- Require new developments to provide sidewalks or other pedestrian-dedicated facilities on both sides of new public streets contained within the development. Exceptions may be appropriate where the topography is difficult, proposed lots are of a rural or semi-rural nature, or where the development plan illustrates that pedestrians will be accommodated by alternative means.

- Work with local organizations and neighborhood groups to develop a plan to determine where curbs, gutters, and sidewalks are needed on unimproved local streets and how to pay for the improvements; establishing sidewalk continuity wherever feasible is a priority.

- Pursue funding for the continued replacement and repair of sidewalks that have deteriorated due to age and tree-root invasion.

- Work to develop and seek funding to implement a program to identify, prioritize, and construct the retrofitting of existing intersections that do not currently have accessibility ramps and accommodations at the street corners.

- Strive to ensure that all new or renovated pedestrian facilities be of a sufficient width to ensure pedestrian comfort and safety and to accommodate the special needs of persons with physical disabilities wherever feasible.

T1G – Strive to complete the Build-Out Bikeway Network identified in the Redding Active Transportation Plan, and support related measures to make bicycling a safe, accessible, comfortable, and sustainable transportation mode by:

- Working to secure funding to construct the Bikeway Network improvements identified in the Active Transportation Plan.

- Pursuing the installation of protected bicycle lanes (Class IV separated bikeway treatments) where feasible on arterial streets.

- Seeking to incorporate appropriate bicycle facilities in the design of interchanges, intersections, and other street-improvement/maintenance projects.

- As funding allows, making improvements to streets, signs, and traffic signals as needed to improve bicycle travel, and keep bikeways free of overhanging shrubbery, debris, and other obstacles.

- Supporting, to the extent possible, the efforts of public transit providers including the Redding Area Bus Authority (RABA) to provide bicycle racks on all buses within the system.

- As appropriate, supporting the requirement that new development provide bicycle facilities or pay in-lieu fees based on the fair share of that development's impacts on the bikeway system and needs identified on the Comprehensive Bikeway Plan.

T1H – Strive to achieve the level of service described in this Element for motor vehicle traffic on roadway segments and at intersections during weekday peak-hours, except where achieving the LOS standard would conflict with Complete Streets goals and standards or the City Council determines that extraordinary circumstances exist to require deviation from the LOS standard by requiring new development to provide improvements, pay in-lieu fees and/or pay development impact fees as approved by the City Council and based on the fair share of that development's contribution of improvements needed to achieve the following peak-hour LOS standard/thresholds:

- Level of Service "C" on all City roadways and intersections, except at those specific locations/roadway segments identified within this Element where a LOS "D" is appropriate, including the Downtown Specific Plan area, streets within the state highway system and interchanges, and river-crossing street corridors whose capacity is affected by adjacent intersections.

T1I – Work with the public, stakeholders, and other jurisdictions and agencies to promote, design, and construct an effective transportation system that serves users of all ages and abilities by:

- Pursuing appropriate targeted outreach and public participation in community decisions concerning street design and use.

- Collaborating with Shasta County, the City of Anderson, the City of Shasta Lake, Caltrans, and the Shasta Regional Transportation Agency to integrate bicycle, pedestrian, and public transportation facility planning into regional and local transportation planning programs to encourage connectivity between jurisdictions. Encourage coordination among these agencies to develop appropriate joint prioritization, capital planning and programming, and implementation of street improvement projects and programs.

- Consulting with local public safety agencies to determine critical evacuation routes and recommended street design on designated routes to allow for adequate evacuations during emergency situations.

- Designing a roadway network that should have adequate circulation to allow for secondary and tertiary access points and should avoid developments with single points of access. Existing areas with single points of access should be prioritized to create secondary road access points. Road connections required for secondary access should be designed to meet a minimum road standard allowed by the City Engineer and the Fire Marshall.

T1J – Pursue financing for components of the transportation system, and strive to ensure that the transportation capital improvement program and other budgetary tools include funding for Complete Streets infrastructure-by:

- Updating the transportation capital improvement program (CIP) as necessary and pursuing grant funds and other funding sources to augment City resources.

- Striving to provide appropriate improvements to improve multimodal accessibility with routine street maintenance and improvements such as pavement overlays, sidewalk repair, and ADA curb ramp installation.

T1K – Strive to assess fees on new development sufficient to cover the fair share portion of that development's impacts on the local and regional transportation system by updating the City's Transportation Impact Fee (TIF) as necessary to ensure the fees collected cover the costs of identified improvements. Exceptions may be considered including but not limited to the cases when new development generates significant public benefits (e.g., low-income housing, primary-wage-earner employment), and alternative sources of funding for the improvements can be obtained to offset foregone revenues.

Low-Stress Walk & Bikeways

Goal T2: A connected network of low-stress walk and bikeways within one-half mile of all residents that would connect key travel nodes and activity centers such as those that provide neighborhood retail and services, as well as Downtown Redding.

T2A – Support the provision of a connected network of low-stress walk and bikeways to connect major activity centers, including Downtown Redding and the Redding Transit Center, by considering implementation of the measures identified below. Low-stress bikeways should generally consist of separated bikeways (Class IV bikeways), sometimes referred to as "protected bicycle lanes," on arterial or collector streets; bicycle boulevard treatments on local streets; or multi-use paths.

- Work to identify and prioritize routes for a connected network of low-stress walk and bikeways, identifying barriers to low-stress travel with plans to address them. Incorporate maps and plans into future updates of the Redding Active Transportation Plan. Pursue funding to construct the network.

- Work to identify networks for walking and biking to connect with key travel nodes and activity centers, including transit nodes and strategic growth areas. Consider accessibility to all neighborhoods and housing, striving to ensure access to a connected network of low-stress walk and bikeways within one-half-mile radius of all residents. Key travel nodes and activity nodes include Downtown Redding, Redding Transit Center, transit nodes (where multiple transit lines intersect), schools, City Hall, County Government Center, Shasta College, Simpson University, major parks and recreation centers, employment centers/business parks, neighborhood commercial nodes, and regional commercial centers.

- As funding permits, develop design standards for the low-stress walk and bikeway network that establishes a "kit of parts" set of standards for the three low-stress facility types: 1) separated bike lanes on arterial and collector streets, 2) neighborhood greenways, and 3) off-street paths and trails. An implementation strategy to construct needed improvements to the network should be established.

- Work with the Cities of Anderson and Shasta Lake, and Shasta County to identify low-stress walk and bike routes that connect to the Downtown Core strategic-growth areas of the cities and towns of Shasta County.

- Support, to the extent feasible and as funding allows, operation of amenities and programming to enable daily transportation by people biking and walking, including bikeshare services, the Shasta Bike Depot at the Redding Transit Center, secure bike parking, short-term bike parking racks, and similar secure bike parking and e-bike charging stations, to meet existing and future needs for the encouragement and education of those who travel via walking or biking.

- Work with the local school districts to develop specific transportation plans associated with schools and the surrounding neighborhoods to address conflicts with traffic, pedestrian movements, safety during school hours, and bicycle facilities to and from schools. This may include a plan to implement slower speed school zones while children are present and flashing beacons to identify when these school zones are in effect.

T2B – Support provision of continuous greenbelt trails within and between parks, and along the Sacramento River connecting Redding to the City of Shasta Lake, the City of Anderson, and Cottonwood. Efforts may include:

- Striving to provide trail access, within a one-half mile radius, to all residents, and to connect trails to all parks; parks should be equipped with safe and secure bike parking and electric charging stations for bikes and vehicles.

- Striving to connect trails to all schools, parks, and other large recreation destinations such as the Sacramento River Parkway, Downtown, the Civic Auditorium, Waterworks Park, and the YMCA, as well as civic buildings such as the Courthouse, Library, Shasta County government buildings on Court Street, and City Hall.

Public Transportation

Goal T3: Public transit service that is safe, efficient, cost-effective, and responsive to the needs of residents, workers, and visitors, including micro-transit, para-transit, and seasonal flexibility (e.g., increased service during the hot summer months).

T3A – Support the provision of enhanced transit service that is timely, cost-effective, responsive to growth patterns, and meets the diverse needs of existing and future transit demand by:

- Working with the Shasta Regional Transportation Agency (SRTA) and public transit providers including the Redding Area Bus Authority (RABA) on an ongoing basis to plan and implement additional public transit services.

- Supporting, to the extent feasible and as funding allows, the continuation and expansion of private commercial or nonprofit bus operations to provide additional regional transit opportunities for residents.

- Promoting coordination of public transit, intercity rail, bicycle share program, intercity bus, and air transportation services to enhance the transportation options available for residents and visitors to the Redding community.

- Supporting, to the extent feasible and as funding allows, provision of intercity bus service.

- Developing policies and procedures to implement shared mobility devices to help enhance public transit options. These micro-transit shared mobility type devices could include scooters and e-bikes, but may be expanded as technology develops.

T3B – Provide physical measures to enhance transit service by considering to undertake the following:

- Require new development to install and maintain passenger amenities at designated bus stops when relevant to accommodating project trips or mitigating VMT as appropriate.

- Provide bus facilities along arterial streets as indicated in an applicable transit development plan. Determine the precise locations during the development plan review or at the time of major street improvement or reconstruction.

- Work with RABA to provide safe, attractive, well-lit, comfortable, and protected waiting areas for bus passengers.

Vehicle Miles Traveled

Goal T4: A mix of land uses and transportation amenities that reduces vehicle miles traveled (VMT).

T4A – Support measures that help reduce VMT below regional averages on a "residential per capita" and "per employee" basis by:

- Encouraging employers, colleges, and schools to provide incentives and facilities (e.g., showers) for employees and students utilizing alternatives to the single-occupant automobile, such as carpools, vanpools, buses, bicycling, and walking.

- Encouraging employers, including government agencies, to allow telecommuting and flex time and to promote staggered shifts or base work hours that do not coincide with peak-period traffic to reduce peak-hour trips.

T4B – Prioritize infill and mixed-use development, and encourage new development in close proximity to existing employment, housing, schools, commercial centers, and other services and amenities as addressed in the Community Development and Design Element.

Safety

Goal T5: A safe transportation system that minimizes traffic-related fatalities and reduces non-fatal injury collisions.

T5A – Support efforts to eliminate traffic fatalities and serious injuries attributable to collisions on City streets by considering the following measures:

- Develop a "Vision Zero" strategy to reduce traffic fatalities and serious injuries to zero. The aim of "Vision Zero" is to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, and equitable mobility for all.

- Implement safety improvements consistent with those recommended by the Redding Local Roadway Safety Plan (LRSP) as funding allows.

- Monitor collision data and develop countermeasures to address identified collision patterns as feasible.

- Identify and prioritize intersections and other locations where collisions have occurred or that present safety challenges for pedestrians, bicyclists, or other users, including, but not limited to, intersections within one mile of schools; consider gathering additional data through methods such as walkability/bikeability audits.

- Restrict speed limits where feasible within the confines of State law, particularly in residential neighborhoods, Downtown, and other areas of the City where pedestrian and bicycle travel are strongly encouraged, to reduce the potential for pedestrian injuries and fatalities.

- As funding is identified, implement measures to reduce motor vehicle speeds where applicable. Such measures may include, but are not limited to, installation of traffic circles and/or narrower lane widths (10 to 11 feet).

- Consider installing automated speed enforcement of motorized vehicles on high-risk road segments and at high-risk intersections/traffic circles, and installing automated traffic cameras on high-risk road segments and at high-risk intersections/traffic circles.

T5B – Promote safety in neighborhoods by developing the local transportation network in a manner that does not create conflicts between vehicles and residents. Efforts may include:

- Developing and implementing, as feasible, neighborhood protection plans when traffic studies or monitoring confirm excessive traffic volumes, substantial through traffic, speeding, or vehicle collisions in specific residential areas.

- Emphasizing the use of landscape and other visual cues to slow through traffic; the installation of physical measures such as delineators, traffic circles, and speed tables should be designed to enhance the visual aspects of the subdivision.

- Establishing street design standards and review criteria that will result in neighborhood streets that discourage cut through traffic and keep travel speeds low. The design standards may consider such things as excessive length and width and lack of connecting streets to adjacent neighborhoods and arterial streets. Encouraging new subdivisions to utilize a grid street layout where feasible and to have multiple points of access to enhance access and reduce funneling traffic into one intersection.

- Strongly encouraging new neighborhoods to incorporate detached sidewalks and to establish landscape "parkways" between the curb and sidewalk. Continuous and consistent tree planting to form canopy closure is encouraged.

- Routing through traffic around the perimeters of neighborhoods where possible.

Downtown

Goal T6: Reinforce the urban land use pattern of Downtown Redding.

T6A – Strive to retain alleys in the Downtown area to create shared spaces for bicycling and walking, and convenient service access, to local businesses.

T6B – Work to identify and seek funding for motorized and low-stress non-motorized transportation linkages to connect Downtown Redding. Destinations outside of Downtown that would require additional connections include Park Marina, Turtle Bay, and Redding Civic Auditorium areas.

T6C – Any new uses Downtown that would typically require a Traffic Study may be exempted unless it is determined that the proposed development would substantially increase traffic at intersections and roadways within this area of the City. If a traffic study is determined to be required, the study should identify measures to maintain high-quality access and mobility in the area with a priority toward active transportation modes. New discretionary land use permit requests within the Downtown area which generate net new PM peak-hour vehicle trips should participate in enhancing access and mobility for transit, bicycle, and pedestrian modes. These enhancements may include, but are not limited to:

- Enhancing sidewalks to create a high-quality pedestrian environment, including wider sidewalks and improved crosswalks, native and drought-resistant landscaping, buffers between sidewalks and vehicle travel lanes, enhanced pedestrian lighting, wayfinding signage, shade trees, and canopies, increased availability of benches, provisions for café-style seating, and usage of monument elements and other forms of public art.

- Improving bicycle facilities to include attractive and secure bicycle parking, installation of bike lockers in appropriate locations, and provision of bicycle lanes, bike paths, and wayfinding signage along appropriate roadways.

- Supporting the development of a Downtown Business Improvement District or similar mechanism to help fund ongoing maintenance of the streetscape enhancements.

T6D – Work with Caltrans to designate Caltrans facilities that act as arterials through Downtown Redding to be developed as "Main Streets" as an integral part of Downtown, rather than primarily throughway conveyances past Downtown. These main street designations should include the Complete Streets standards within the General Plan and include the safety elements, such as Vision Zero, and accommodate all modes of transportation such as transit and shared mobility devices.

Parking

Goal T7: Convenient on-street and off-street parking facilities for motorized and electric vehicles (including charging stations) and bicycles that supports economic development, livable neighborhoods, sustainability, and public safety.

T7A – Strive to maintain adequate on-street and public off- street parking areas, including electric vehicle charging stations, to meet ongoing parking demands by considering the following measures:

- Pursue funding options and strategies for the construction and maintenance of shared parking facilities/structures Downtown.

- Seek funding to provide electric charging stations at parking lots and rest areas for cars, trucks, and bicycles throughout the City.

- Encourage and facilitate the provision of electric-vehicle charging facilities in new parking lots and multi-family residential developments.

- Strive to install secure bicycle parking with electric charging stations and large enough for cargo bikes in the Downtown area and at City parks, civic buildings, and other community centers.

T7B – Endeavor to ensure that required parking provisions for private development support efforts to encourage multimodal travel and reduce VMT by:

- Pursuing maximum and minimum standards for automobile parking spaces in transit corridors and Downtown to promote use of alternate modes of travel as may be appropriate.

- Pursuing minimum standards for bicycle parking, including both long-term and short-term bicycle parking spaces.

T7C – Generally, prohibit on-street automobile parking on arterial streets if there is not adequate space for bike lanes and parking lanes outside the Downtown area to reduce congestion and conflicts.

T7D – Work to ensure the provision of adequate curbside or off-street space where applicable to accommodate passenger pick-up/drop-off activity by transportation network companies (TNC) and delivery services.

Regional Transportation Planning

Regional planning is a key element in dealing with traffic congestion and air pollution that results from vehicle commuting. To address regional transportation issues, Redding works closely with the Shasta Regional Transportation Agency (SRTA). This agency administers over $24 million in State and federal funds for the planning construction, operation and maintenance of transportation projects throughout Shasta County. SRTA is made up of elected officials from Shasta County, the Cities of Redding, Shasta Lake, and Anderson, and RABA.

Goal T8: Ensure interagency and regional coordination with regard to transportation planning and improvements and to improve the regional mobility network.

T8A – Work closely with Caltrans and the Shasta Regional Transportation Agency (SRTA) to ensure that State facilities located within the City—including SR 299, SR 44, SR 273, Interstate 5, and intersections/interchanges that involve those facilities—are constructed in a manner consistent with the goals and policies of this element to the extent feasible.

T8B – Encourage Caltrans and SRTA to incorporate desired City design features (including Intelligent Transportation System programs, landscaped medians, Class II bike lanes, Class IV separated bikeways, and detached sidewalks) within State facilities that function as arterials and gateways through the City. Work with Caltrans to develop a "Main Street" arterial standard for Caltrans right of way through Downtown Redding.

T8C – Work closely with Shasta County to ensure that adequate street rights-of-way and improvements are provided in areas within the "Primary Growth Area" and "Secondary Growth Area" of this General Plan. Such improvements should be consistent with City of Redding standards as appropriate.

Aviation

Goal T9: Enhanced air travel opportunities at the Redding Municipal Airport and Benton Airpark.

T9A – Continue to plan and develop the Redding Municipal Airport as addressed in the Economic Development and Public Facilities and Services Elements to maximize its contributions to business efficiency, economic development, and recreational opportunities within the region.

T9A-1 – Encourage the establishment of additional commercial airline providers at the Redding Municipal Airport to provide the widest range of aviation travel choices to residents and businesses within the region.

T9B – Support Benton Airpark as a public-use, general aviation airport and commercial-reliever facility for the Redding Municipal Airport.

Rail Service & Facilities

Goal T10: Maximum availability and use of both freight and passenger rail service.

T10A – Encourage the Union Pacific Railroad (UPRR) Amtrak, the State of California, the San Joaquin Joint Powers Authority, and the Capital Corridor Joint Powers Authority to increase passenger service by expanding rail schedules to include a greater number of stops and range of connection times and by providing safe, comfortable and seamless station facilities that connect to the adjacent RABA Downtown Transit Center and the bike share program.

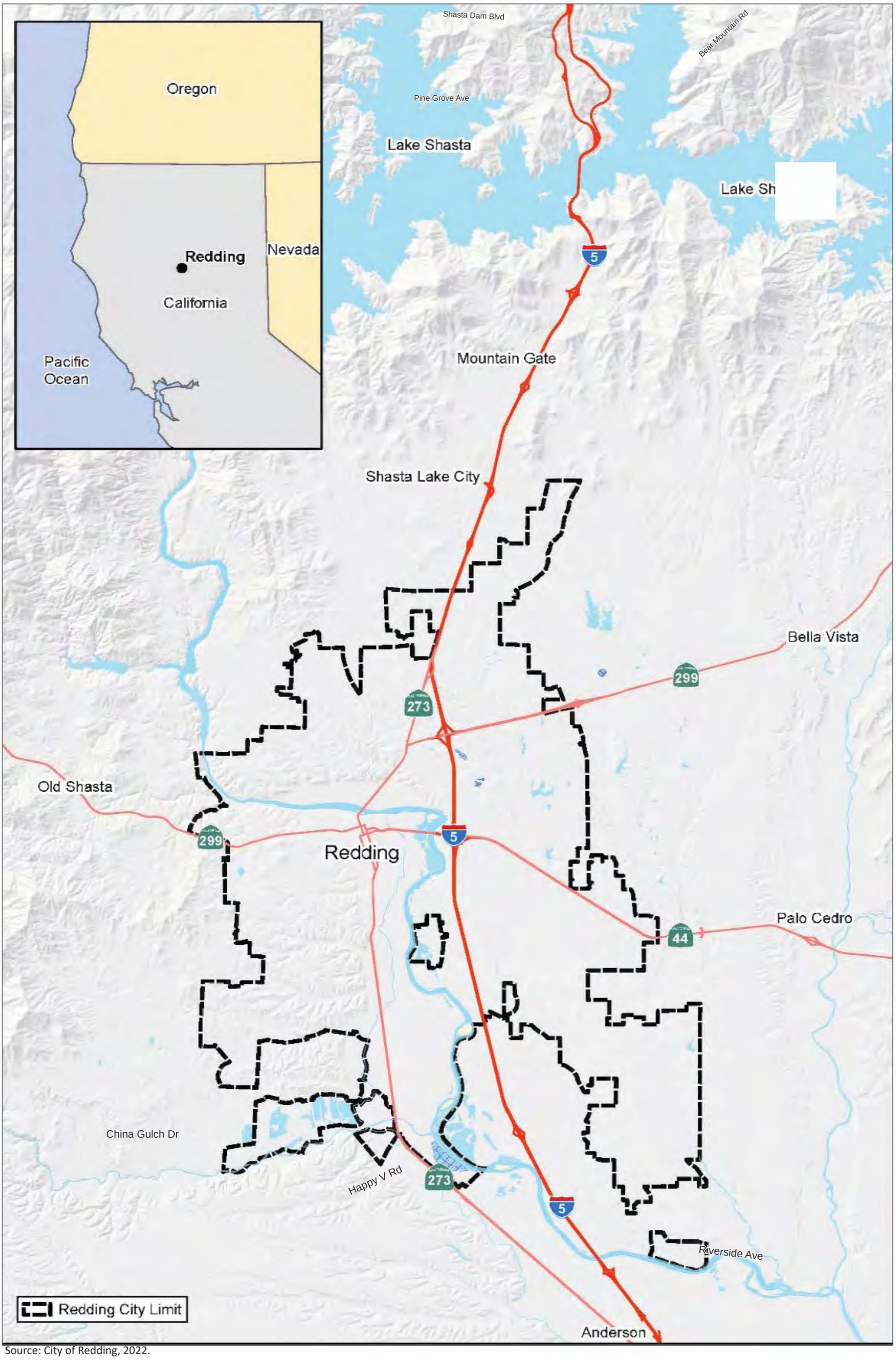
T10B – Work with UPRR, the State of California, and other stakeholders to identify any surplus right-of-way that may be suitable for parking or other facilities associated with a future light-rail system.

T10C – Seek the cooperation of UPRR in establishing a rail-side facility for freight-container unloading to augment goods-transportation opportunities.

T10D – Strive to protect existing rail alignments and facilities through zoning from encroachment by new potentially incompatible land uses to the extent feasible.

T10E – Support efforts, as funding allows, to improve safety at locations where rail and other transportation facilities interface.

T10F – Strive to provide for additional grade-separated railroad crossings at South Bonnyview Road and in the Downtown area.



Source: City of Redding, 2022.

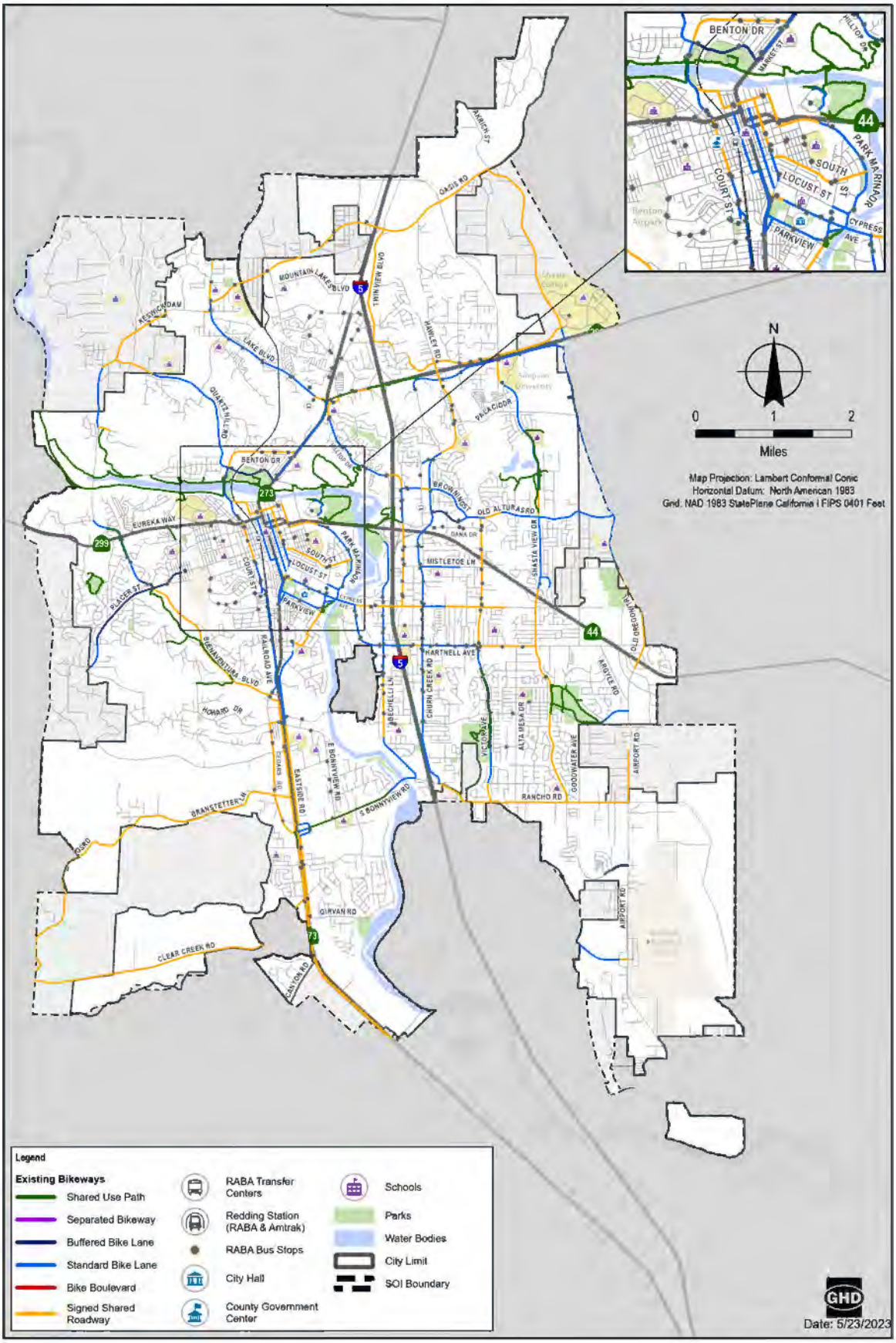
Figure 1
Regional Location

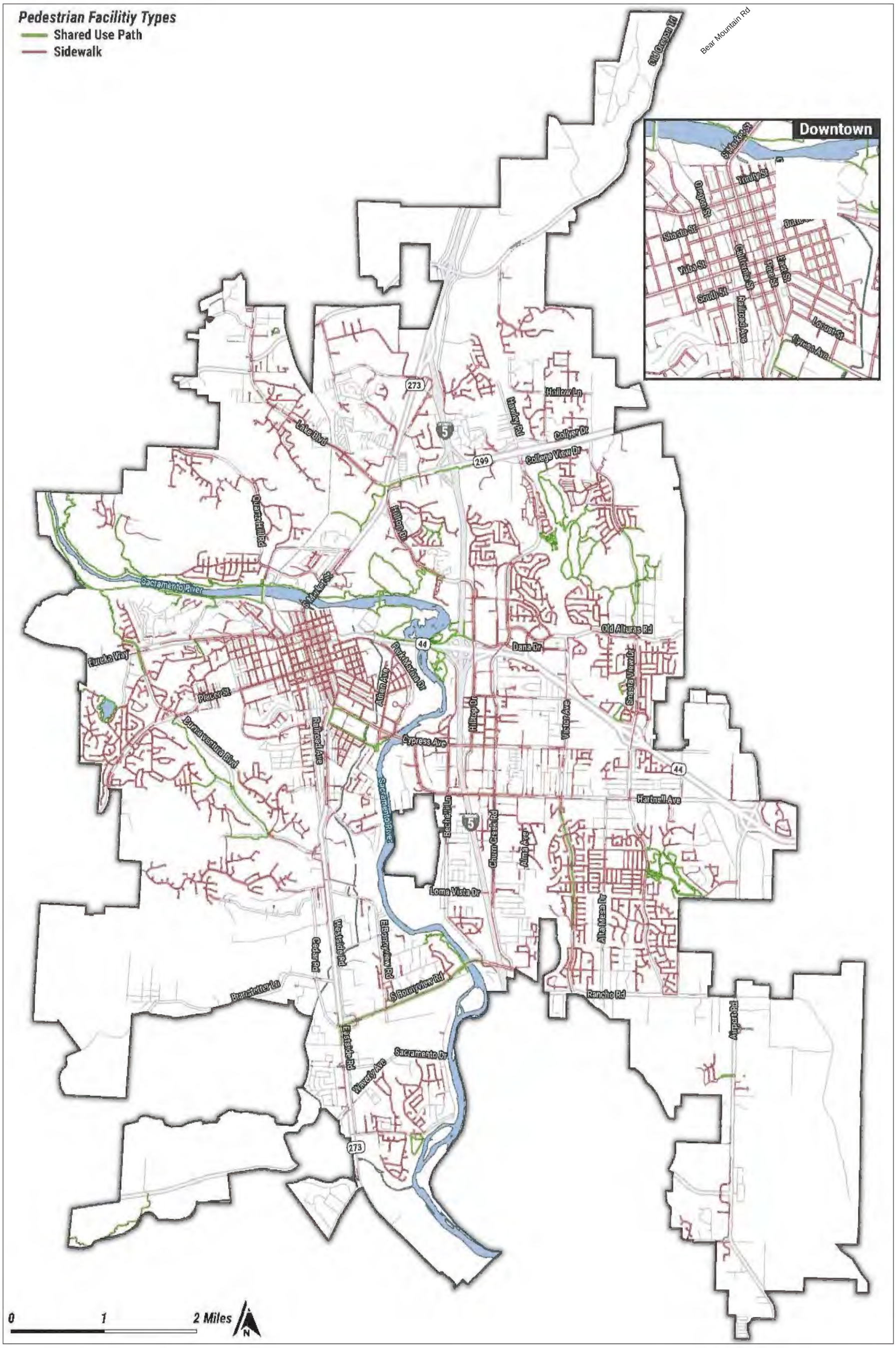


0 10
Scale (Miles)

Figure 2
RTP/SCS Strategic Growth Areas

Figure 3: Existing Bikeways (Year 2022)



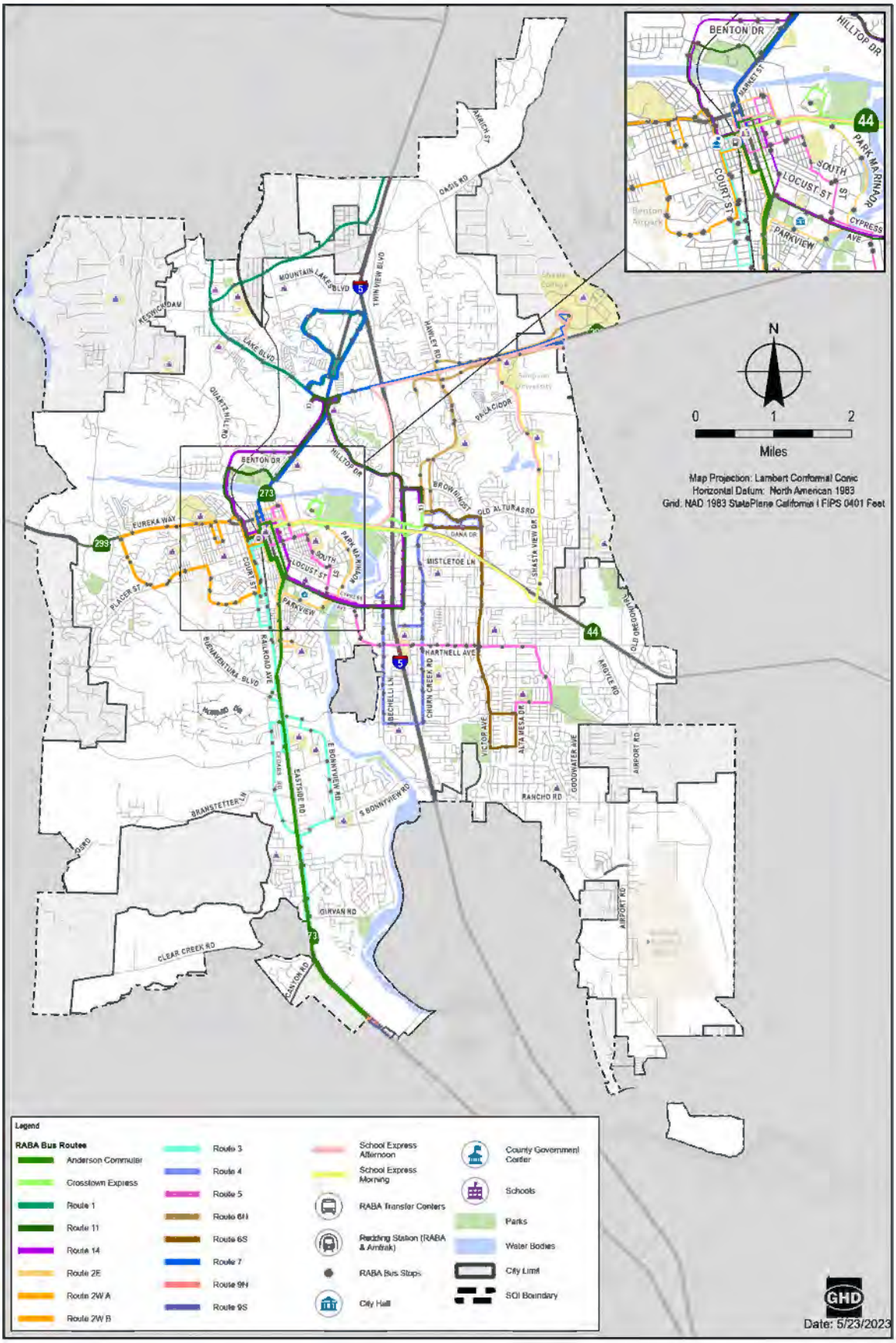


Source: Redding Active Transportation Plan

Figure 4

Existing Sidewalks & Paths

Figure 5: Public Transit Routes & Stops



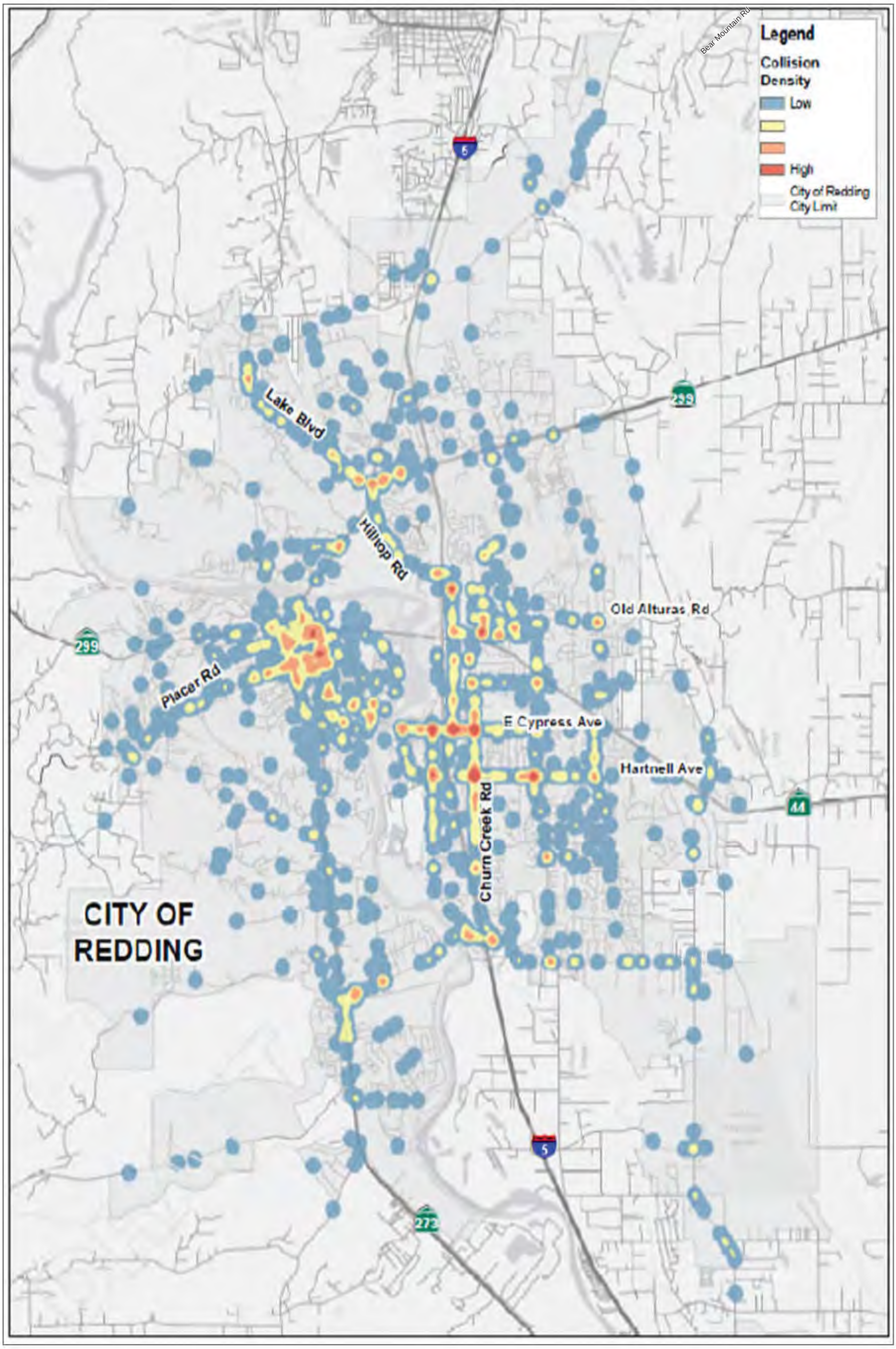


Figure 6

Collision Density on City Roadways (2015-19)

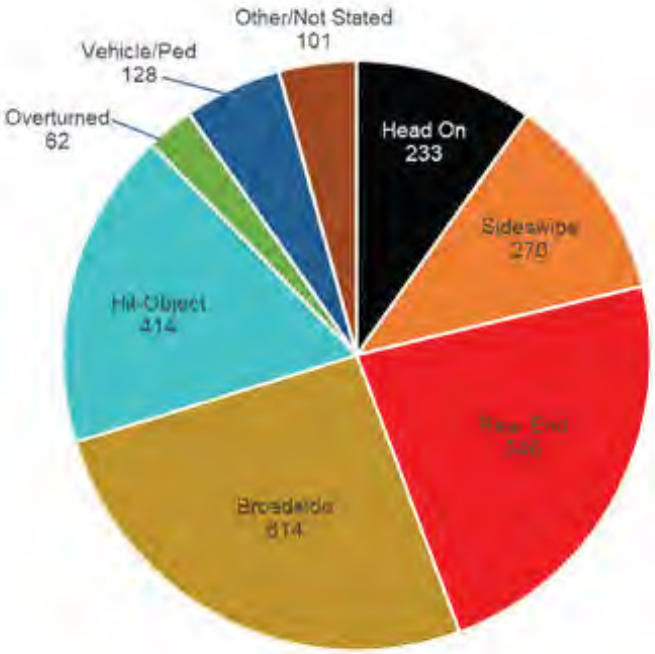


Figure 7

Collision Types on City Streets



Figure 8

Collision Density on Caltrans Facilities

Figure 9: Circulation Plan

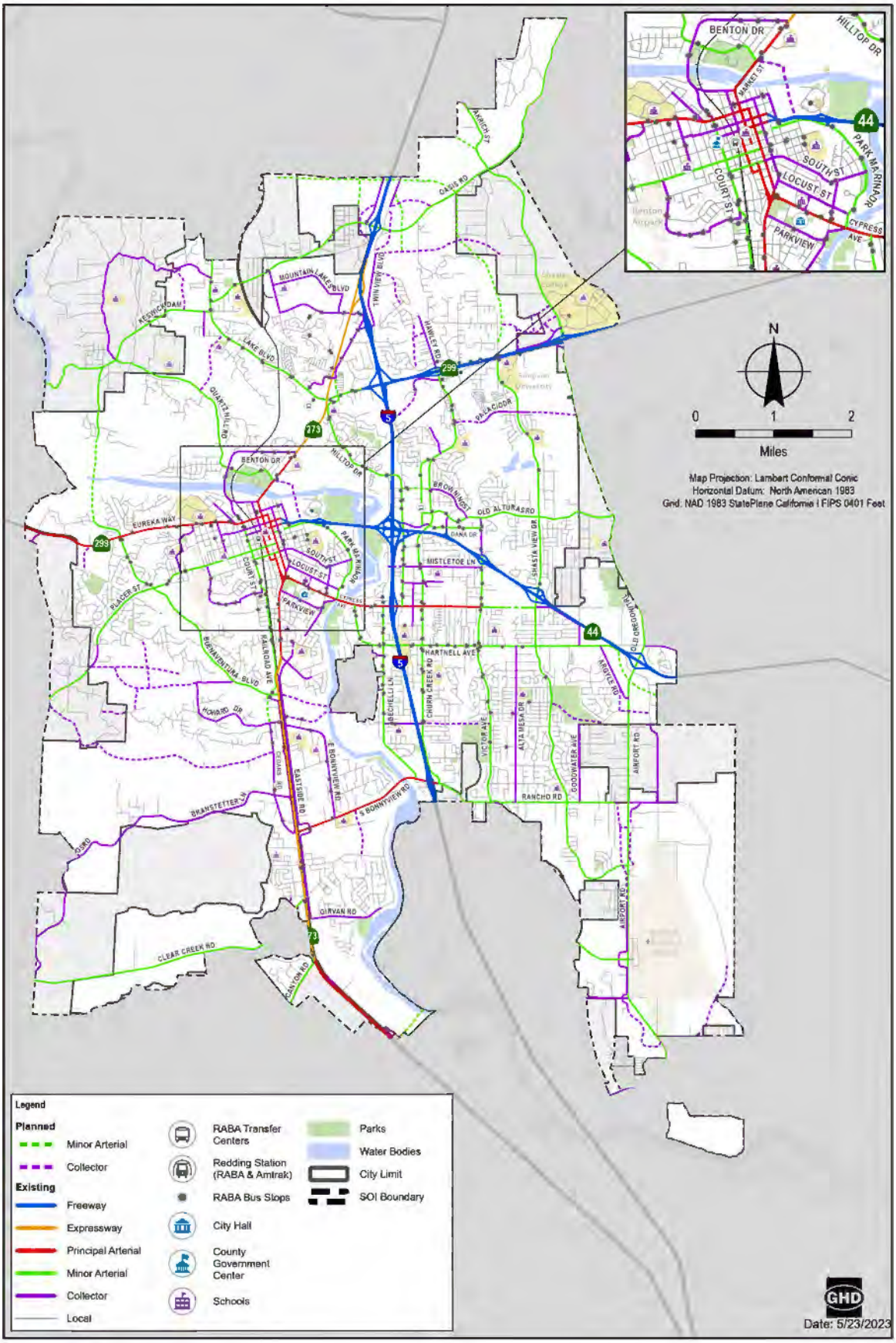


Figure 10: Planned Bikeways

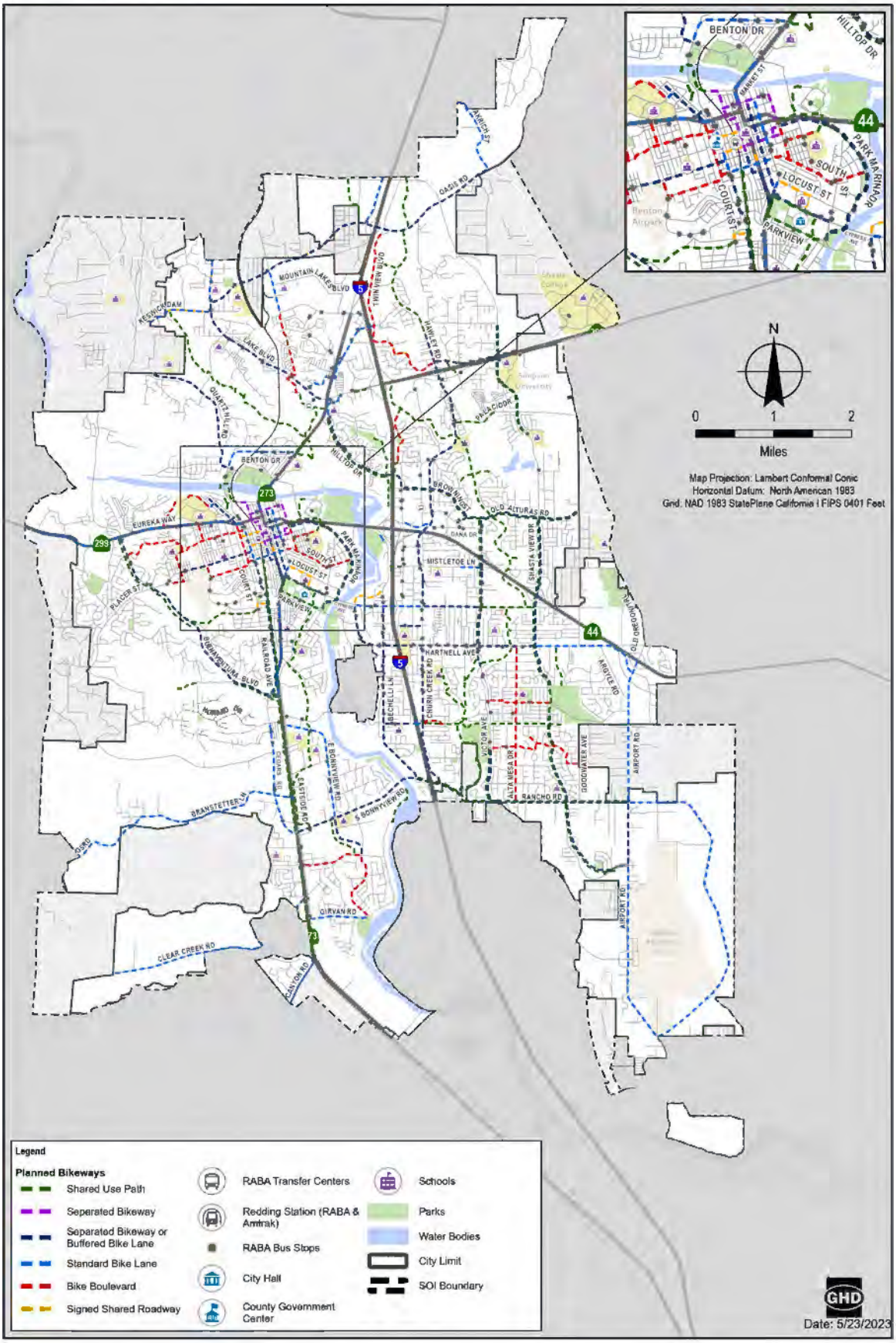


Figure 11: Planned Buildout Bikeway Network

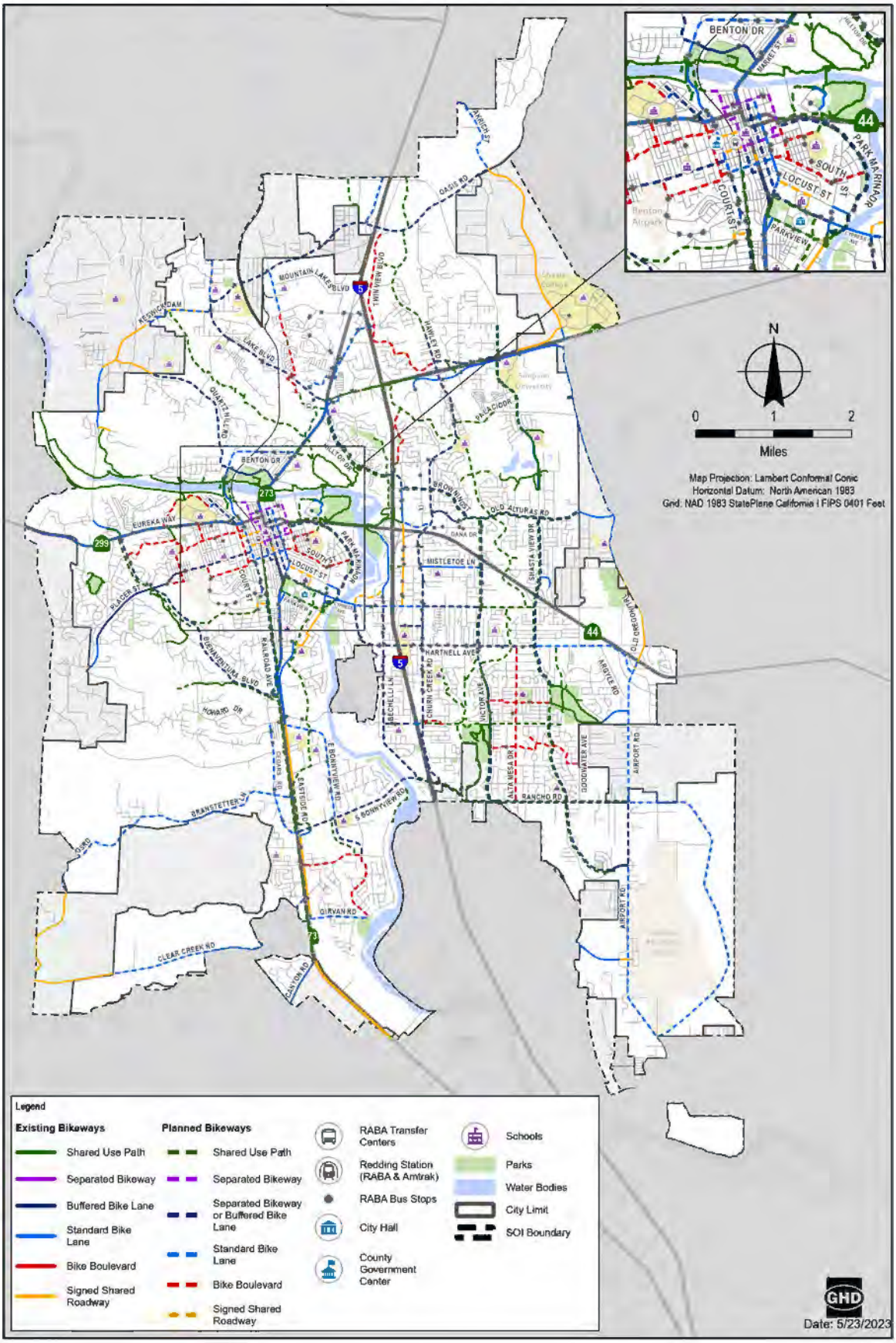
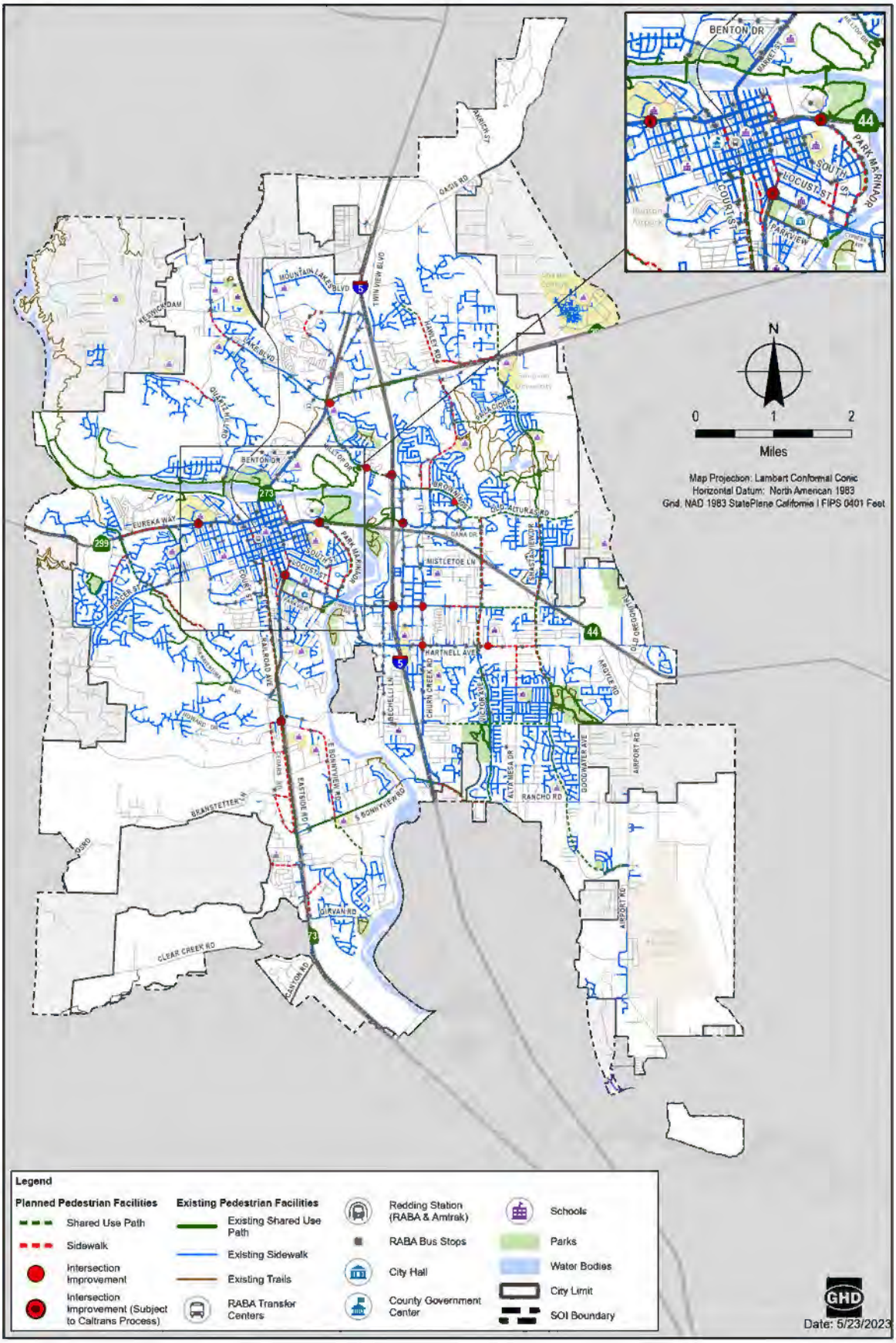


Figure 12: Planned Pedestrian Improvements



Public Review 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.
- 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 identify 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 Redding Municipal Code (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 the 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, Blue Oak Woodland, or Blue Oak-Foothill Pine. Mixed Chaparral and Annual Grassland land cover types are dominant in 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 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 is 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" 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.

Archaeological, 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 designates 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 (GHG)

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.

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 (PM2.5).
- 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 BAMM 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.

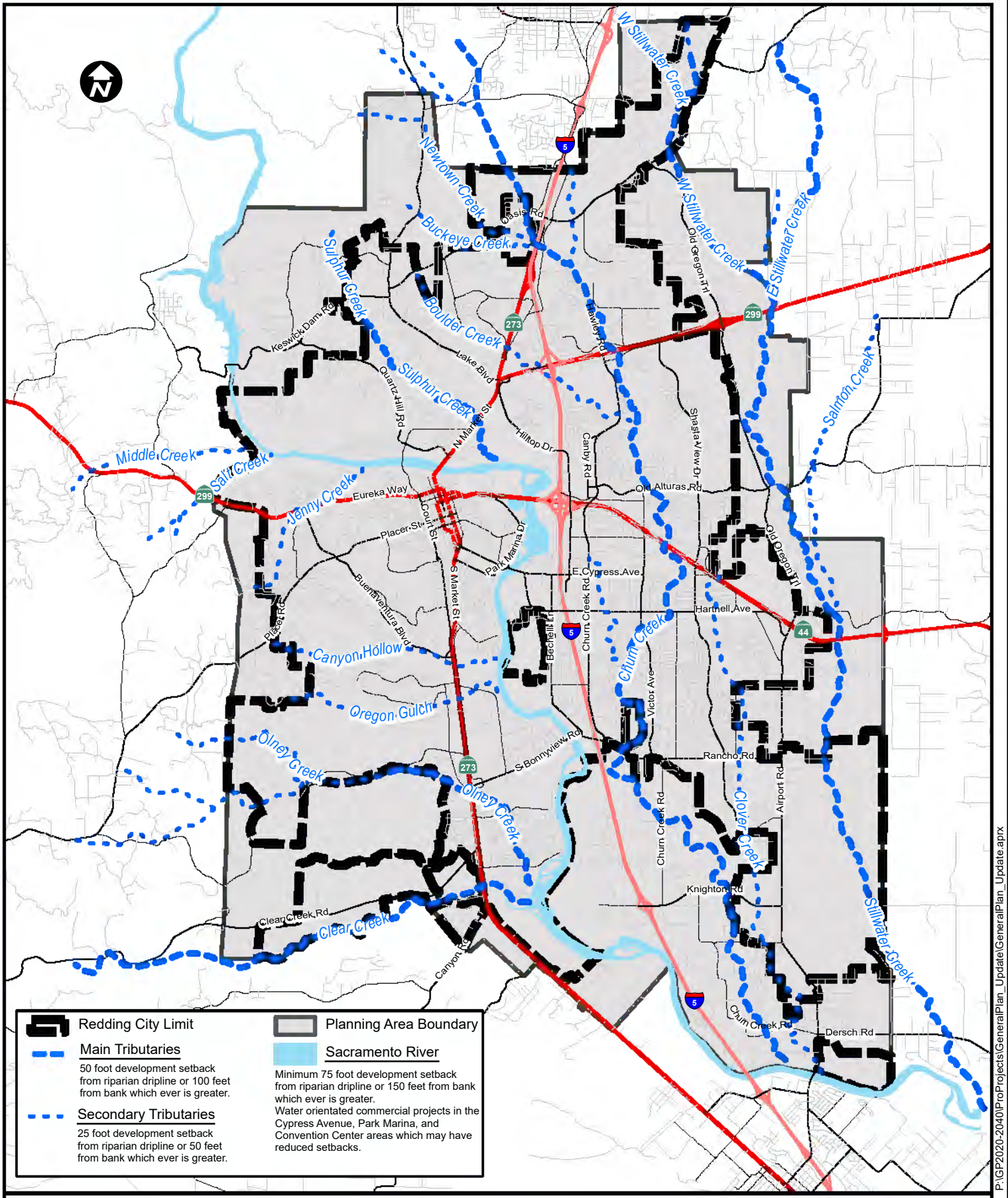
NR14E – Work toward establishing a formal internal process for use in the project review stage to determine and document the following criteria established are in evidence for projects where streamlining is proposed.

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:

- The proposed project is consistent with the General Plan land use designation for the project site.

- 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.

- 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).

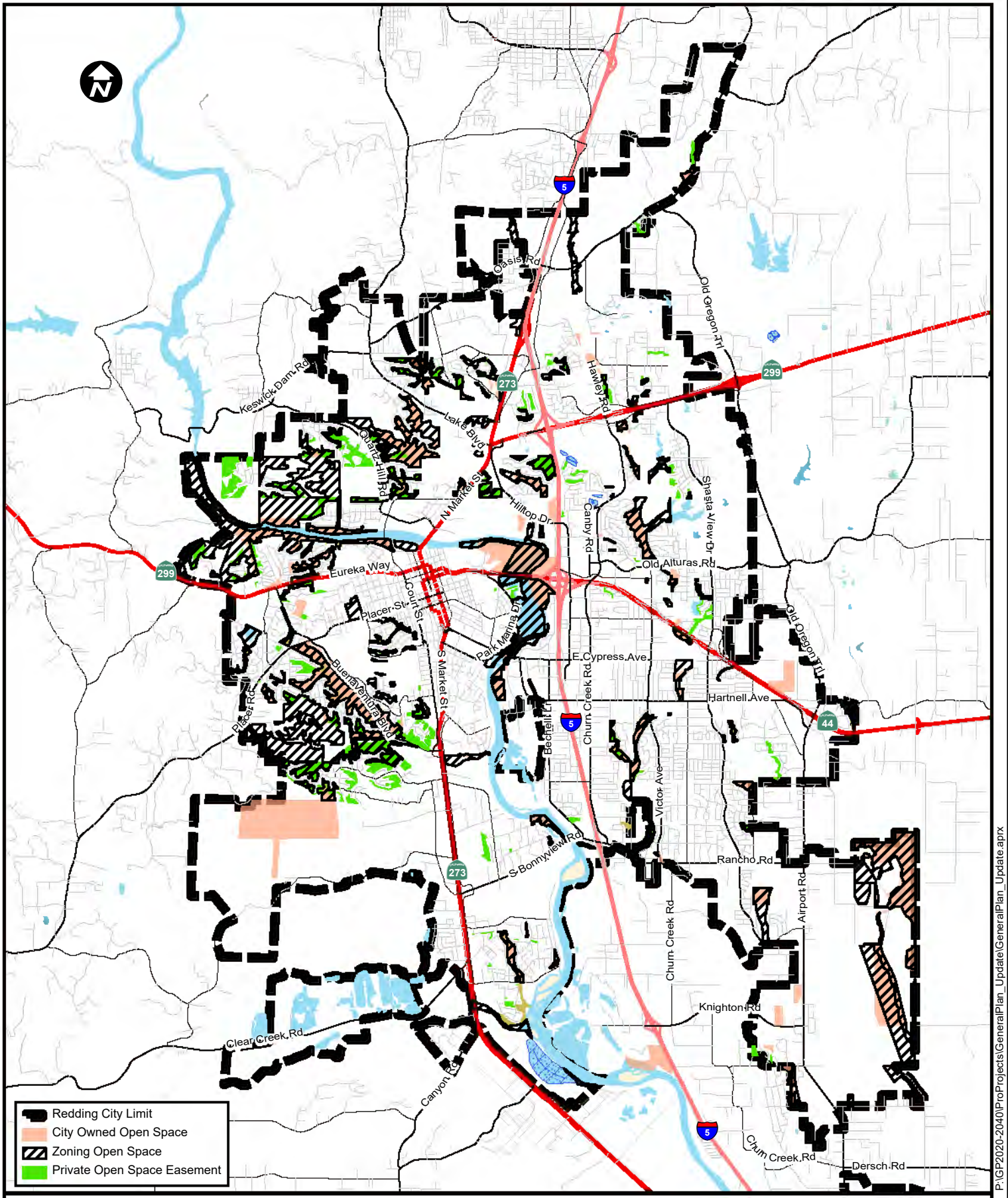


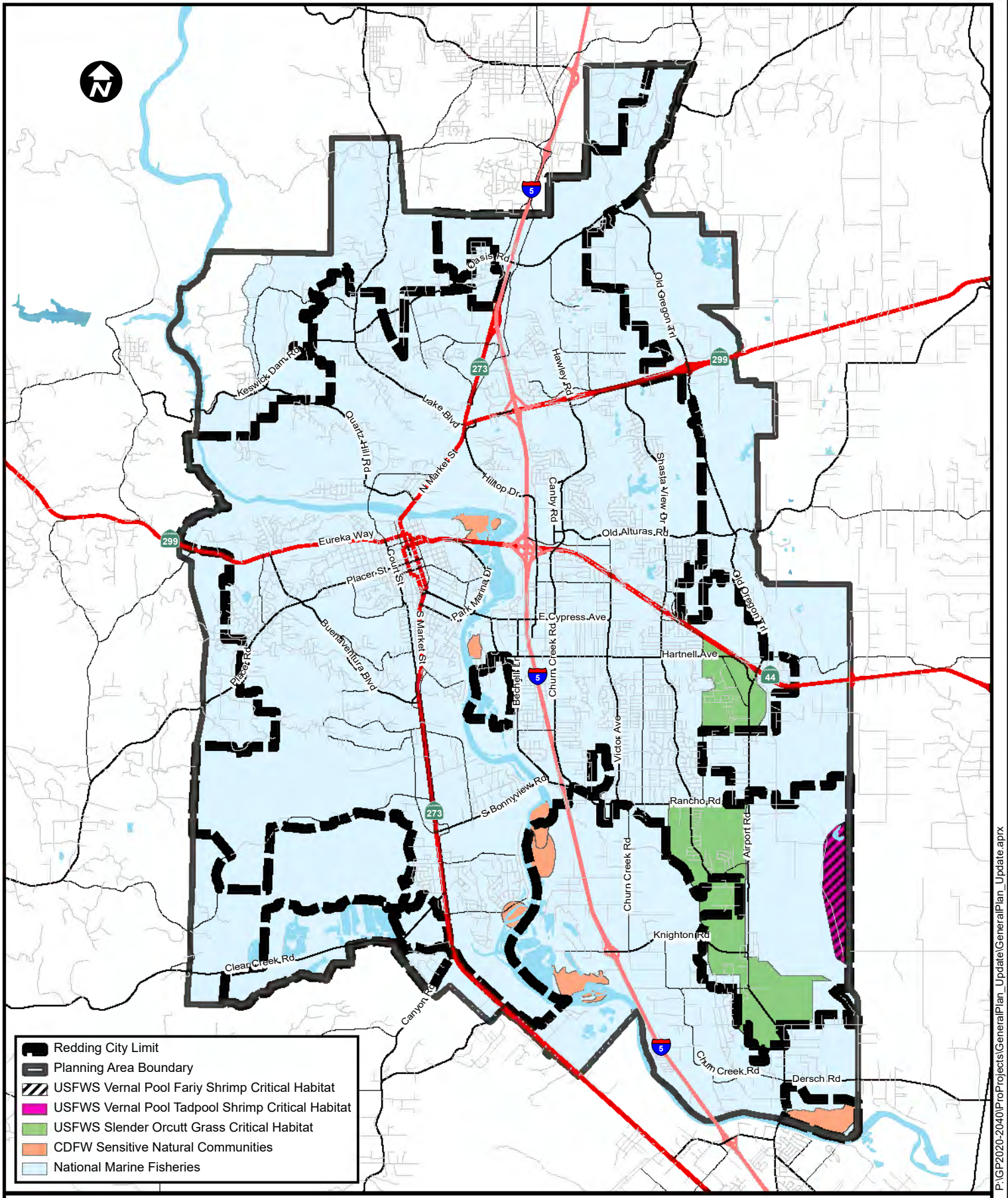
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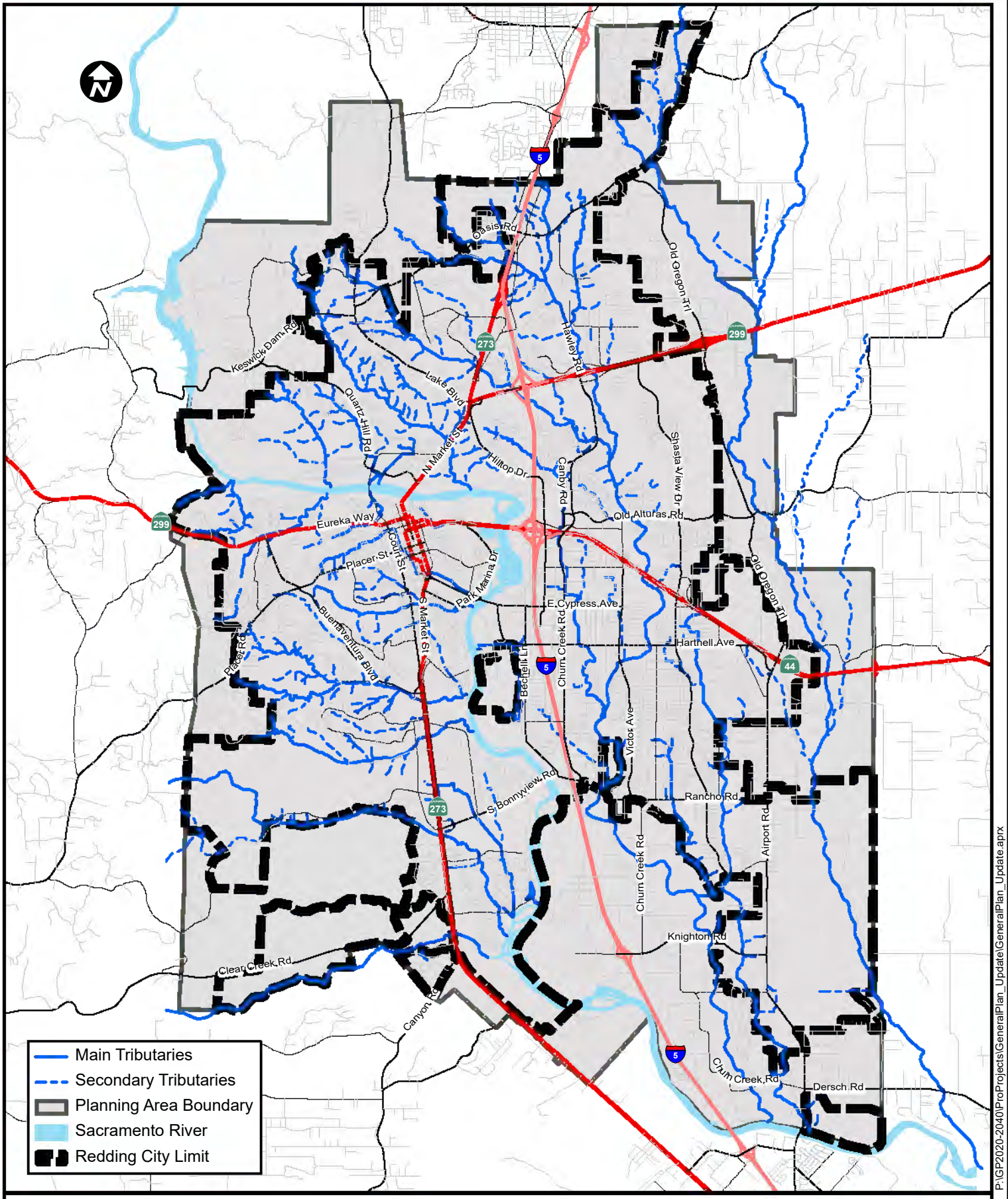
NR-1
River and Creek Corridor Buffer Widths

Print Date: April 13, 2023

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Redding City Limit
City Owned Open Space
Zoning Open Space
Private Open Space Easement
Keswick Dam Rd
Oasis Rd
Old Oregon Tr
Hawley Rd
Lake Blvd
Quartz Hill Rd
N Market St
Hilltop Dr
Canby Rd
Shasta View Dr
Old Alturas Rd
Eureka Way
Placer St
Court St
Park Marina Dr
E Cypress Ave
S Market St
Buena Vista Dr
Placer Rd
Bechelli Ln
Churn Creek Rd
Victor Ave
Hartnell Ave
S Bonnyview Rd
Rancho Rd
Airport Rd
Churn Creek Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Churn Creek Rd
Dersch Rd
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NR-2
Open Space
Print Date: April 13, 2023
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Redding City Limit
Planning Area Boundary
USFWS Vernal Pool Fariy Shrimp Critical Habitat
USFWS Vernal Pool Tadpool Shrimp Critical Habitat
USFWS Slender Orcutt Grass Critical Habitat
CDFW Sensitive Natural Communities
National Marine Fisheries
Oasis Rd
Old Oregon Trl
Keswick Dam Rd
Quartz Hill Rd
Lake Blvd
Hawley Rd
N Market St
Hilltop Dr
Canby Rd
Shasta View Dr
Eureka Way
Old Alturas Rd
Placer St
Court St
Park Marina Dr
E Cypress Ave
Placer Rd
Buenaventura Blvd
S Market St
Bechelli Ln
Churn Creek Rd
Hartnell Ave
Victor Ave
S Bonnyview Rd
Rancho Rd
Airport Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Churn Creek Rd
Dersch Rd
299
273
5
44
Miles
0
1
2
NR-3
Sensitive Natural Communities in the Planning Area
Print Date: April 13, 2023
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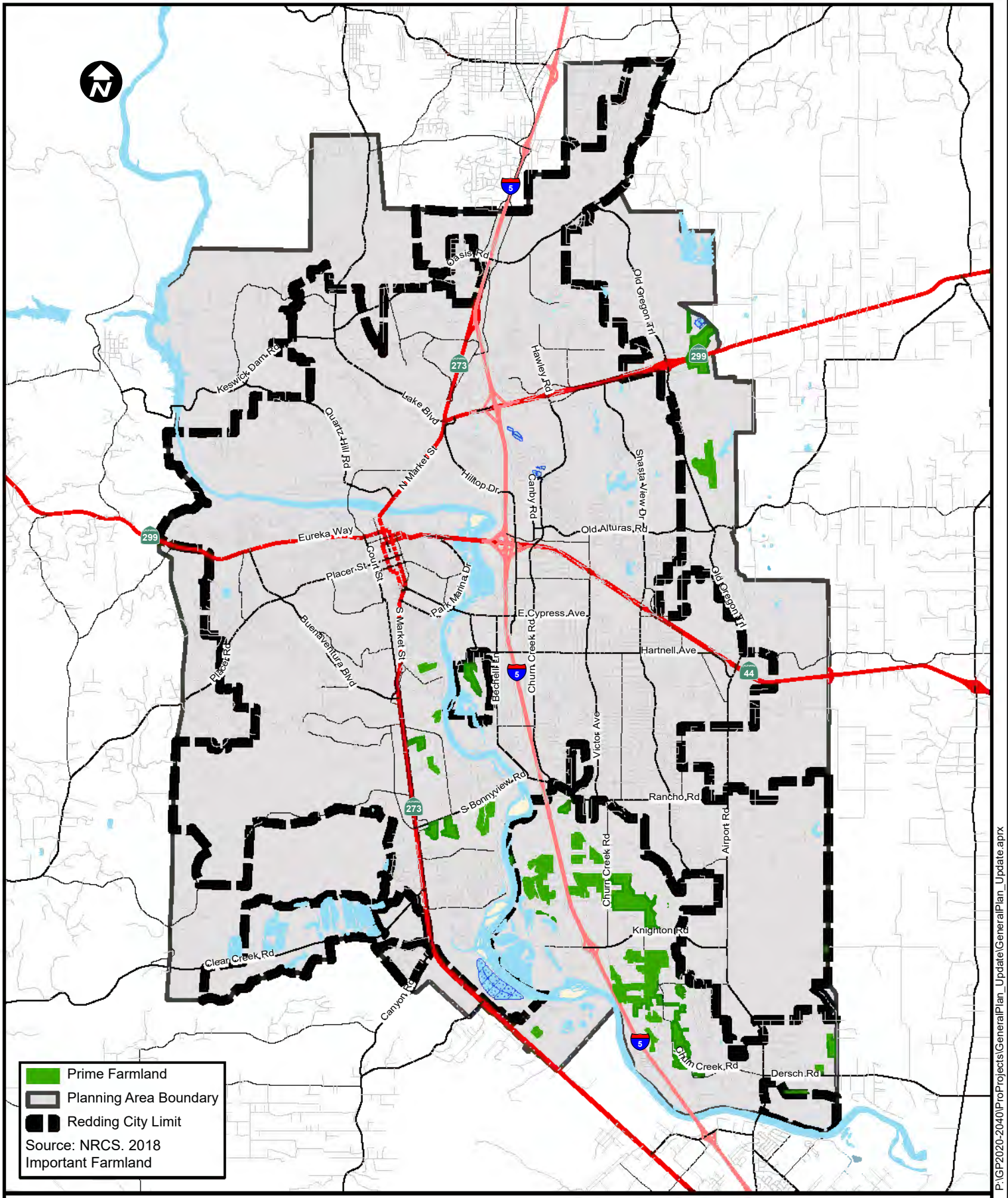


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Miles
0 0.75 1.5

NR-4
Sacramento River Corridor, Streams, and Stream Segments

Print Date: March 8, 2023



0 1 2 Miles

NR-5
Prime Farmland

Print Date: April 13, 2023

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Public Review Draft Public Safety Element

Introduction

Purpose and Context

Public safety has evolved over the years to cover a wide range of issues including potential short- and long-term risk of injuries, property damage, economic and social dislocation, and even death, resulting from natural causes or negligence of society. The intent of the Public Safety Element is to document potential hazards that must be considered when planning the location, type, and density of development throughout the Planning Area and, to the extent feasible, provide guidance to mitigate the various identified risks.

Specific topics addressed within the Policy Document include:

- Seismic and Geologic Hazards
- Flood Hazards
- Dam Failure Inundation
- Urban and Wildland Fire Hazards
- Crime Prevention
- Airport-Related Hazards
- Emergency Response
- Hazardous Materials
- Critical, Sensitive, and High-Occupancy Facilities
- Evacuation Routes
- Extreme Weather

The City has two important plans that help to implement the goals and policies of the Public Safety Element:

Emergency Operations Plan

The Emergency Operations Plan is an all-hazard plan that describes how the City of Redding will organize and respond to emergencies and disasters within the community. It is based on, and is compatible with, federal, State of California, and other applicable laws, regulations, plans, and policies, including Presidential Policy Directive 8, the National Response Framework, the State of

California Emergency Plan, and the Shasta County Emergency Operations Plan. California Government Code Section 8607(a) requires the use of the Standardized Emergency Management System (SEMS) for managing emergencies involving multiple jurisdictions and agencies. The Emergency Operations Plan is based on the functions and principles of SEMS and identifies how the City of Redding fits into the overall SEMS structure.

Consisting of a Basic Plan, Functional Annexes, and Incident Annexes, the Emergency Operations Plan provides a framework for coordinated response and recovery activities during a large-scale emergency. The plan describes how various agencies and organizations in the City of Redding will coordinate resources and activities with other federal, State, local, tribal, community- and faith-based organizations, and private-sector partners.

Local Hazard Mitigation Plan (LHMP)

The LHMP describes the type, location, and extent of natural hazards that can affect the City. This includes wildland fire, flooding (including the overflow of Shasta Dam), severe weather events, hazardous materials release, volcanic and seismic activity, and other potential community risks. The document describes the City's vulnerability to these hazards, including hazards that are related to a changing climate, and includes a mitigation strategy that provides the City's blueprint for reducing potential losses. The LHMP is subject to Federal Emergency Management Agency (FEMA) review and certification every five years. The LHMP, together with additional policies contained in various Elements of this General Plan, also addresses and responds to the requirements of California Government Code Section 653012(g) pertaining to climate change adaptation using available analysis tools such as the Cal-Adapt tool, information from federal, state, and local agencies, historical data on the natural event and hazards, and other information sources in developing hazard mitigation and climate adaptation measures. The LHMP, as amended by the Redding City Council from time to time, is hereby incorporated into the Safety Element by reference as though it were fully set forth herein. In the event of any conflict between the provisions of the Hazard Mitigation Plan and the provisions of the Safety Element, the provisions of the Hazard Mitigation Plan shall control.

In addition to the LHMP and the goals and policies of the Safety Element, other General Plan provisions address the requirements of CGC Section 65302(g). In summary, these include:

Natural Resources Element

- Protecting life and property by restricting development in floodplains.

- Establishing river and creek corridor development buffers which can provide additional flood protection and also provide areas for stormwater infiltration, maintaining significant riparian tree cover, and helping filter pollutants and conserve ecosystem values.

- Protecting slopes exceeding 20 percent from development thereby reducing the potential for erosion while also maintaining ecosystem values.

- Developing and maintaining adequate water supplies for domestic and fire-suppression purposes.

- Addressing air quality impacts from development projects by requiring the use of Standard Mitigation Measures (SMMs) and Best Available Mitigation Measures (BAMs) to reduce project-related emissions; and promoting the potential adoption of a climate action plan to address greenhouse gas emissions in the future.

Community Development and Design Element

- Facilitating and incentivizing a development pattern that can lead to reduced vehicle miles traveled with the benefit of reducing greenhouse gases (e.g., establishing community "growth areas" and promoting infill development).

- Reinforcing the Natural Resources Element's development limitations in natural floodplains and steep hillsides, which will preserve ecological values and protect life and property from flooding.

Community Health, Wellness, and Environmental Justice

- Reducing exposure to air pollution, extreme weather events, and consideration of adopting a climate action and resiliency plan.

- Seeking funding to evaluate and implement measures to expand the City's tree planting program, including consideration of establishing an "urban forest management program."

Authority

Pursuant to Government Code Section 65302(g), a General Plan is required to include:

"A Safety Element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. It shall also address evacuation routes, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards."

Assembly Bill 162 (adopted in 2007) amended certain sections of the Government Code pertaining to land use planning. As it relates to the Health and Safety Element, Section 65302(I) requires the Element to identify information regarding flood hazards that is available from a variety of sources.

Goals and Policies

Seismic and Geologic Hazards

Most of the background information concerning seismic safety within the Planning Area has been derived from a detailed report entitled Seismic Hazards Assessment for the City of Redding (City), California, prepared by Woodward-Clyde Federal Services in 1995. That report notes that there are several faults located in the Redding region and determined that there are no "active" faults within 30 miles of the City. However, since its publication, the Redding area has experienced a number of earthquake events, with the strongest reported at a magnitude 3.5. Little is known about the fault responsible for these events, except that the events appear to originate approximately five miles northwest of Redding at a depth of 15.7 miles.

To date, the largest historical earthquake observed in the far Northern California was the 1940 magnitude 5.7 Chico event and the most recent earthquake was observed was the 2022 magnitude 6.4 Ferndale event that resulted in a level IV intensity shaking. However, geologic and geophysical evidence cannot preclude the possibility of a larger earthquake. The Woodward-Clyde study reports that the largest potential earthquake which may affect Redding is a magnitude 7 event.

Of the various seismic hazards that could impact the Planning Area, ground shaking and liquefaction (transformation of water-saturated granular soils to a liquid state during ground shaking) are the most significant. Areas with the highest potential for liquefaction are located along the Sacramento River and its tributaries. Sites with low liquefaction potential are generally located in the gently sloping areas between the river and the foothills. Sites within the foothills are considered to have no liquefaction potential. Figures 1 and 2 identify areas prone to ground shaking and liquefaction, respectively.

Seismically triggered landslides are possible within the westernmost parts of the Planning Area. Other types of ground failure, including expansive soils (those that swell when wet and shrink as they dry) and subsidence (gradual settling or sinking of an area with little or no horizontal motion), are not considered to pose a significant hazard within the Planning Area.

Seiches (earthquake-generated waves within a lake, reservoir, or bay) could potentially be generated in both Shasta Lake and Whiskeytown Lake due to very strong ground shaking. The effects of such seiches would depend on the local conditions at the time. If either reservoir were filled to capacity, there could be some amount of overspill, most likely by way of the dam spillways rather than by overtopping the dams themselves. It would require a seiche of over 65 feet in height to overtop Shasta Dam, even if the reservoir were filled to capacity. In the case of Lake Shasta, it is anticipated that Keswick Dam would regulate the excess flow into the Sacramento River, thereby minimizing any inundation hazard.

Redding is distant enough from the three active Cascade volcanoes in the region (Lassen Peak, Mount Shasta, and Medicine Lake Volcano) that it is unlikely that the Planning Area would be significantly affected by a volcanic eruption. In the case of an eruption of Mount Shasta, volcanic

ash may fall into the northern part of the Planning Area, and minor seiches could be generated in Lake Shasta by debris flows into the arms of the lake where its tributaries enter.

Goal PS1: Minimize the loss of life, injury, and property damage due to seismic and geologic hazards.

PS1A - Continue to require that new structures and alterations to existing structures comply with the seismic safety requirements of the California Building Code (CBC); adopt updated provisions of the CBC related to seismic safety as they become available.

PS1B - Geotechnical investigations for proposed developments on sites with potential hazards, including necessary infrastructure in areas determined to have a "high" liquefaction potential shall be prepared as may be required by the Building Official.

PS1C - As may be required by the Building Official and/or City Engineer, project proponents shall determine the landslide, slope instability, and erosion potential of proposed development sites located in potential hazard areas. Consider utilizing building setbacks, grading techniques, or appropriate measures when constructing in or near unstable areas.

Flood Hazards

The Redding Planning Area is traversed by the Sacramento River and a number of streams that are tributary to the river system, each of which has the potential to damage property and/or result in loss of life from flooding. Mapping of areas prone to flooding is critical for a community to protect its citizens and property from disastrous flood events. The Federal Emergency Management Agency (FEMA) is responsible for mapping flood-prone areas under the National Flood Insurance Program (NFIP). FEMA uses a 100-year storm as the basis for its flood determinations and calculates probable inundation profiles for major drainages based on existing land uses in each drainage. These profiles are projected onto existing topography in each basin.

In 1993, the City undertook a comprehensive study of all major drainage basins in the City. This study, known as the Citywide Master Storm Drain Study (prepared by Montgomery-Watson), was done to ascertain the effects that post-1985 development has had on flood levels and was independent of the studies prepared by FEMA. In most instances, it was determined that flood elevations would be higher than those provided by FEMA, due in large measure to increased urbanization in the area's watersheds and what the City considered to be more accurate information on storm duration and intensity used in the Montgomery-Watson study. The actual limits of flooding cannot be determined without additional elevation data provided for specific properties. Refer to Figure 2 for additional information.

As discussed in detail below, the City uses a combination of the Montgomery-Watson study and the maps provided by FEMA to establish the "regulatory floodplain" for purposes of complying with NFIP requirements. However, the State of California also provides floodplain mapping. The most recent efforts are intended to implement Senate Bill 5, which requires additional efforts to assist communities and individuals in assessing flooding risks. This additional mapping includes the following products:

- Department of Water Resources (DWR) "Best Available Maps" depict the 100-, 200- and 500-year composite floodplains located within the Sacramento-San Joaquin Valley watershed. This mapping includes the Redding area and is based on the best available information available to DWR as required by Senate Bill 5.

- Designated floodway maps for Clear Creek and the Sacramento River, which are available from the Central Valley Flood Protection Board.

The state is also undertaking additional mapping efforts in response to Senate Bill 5 and Assembly Bill 162. This includes floodplain areas protected by Central Valley State-Federal Project Levees (Levee Flood Protection Zone (LFPZ) maps), as well as DWR Central Valley Floodplain Evaluation and Delineation (CVFED) maps. The former does not pertain to Redding, since there are no "project" levees located in Redding. The CVED maps are estimated to be complete by 2023.

The City has adopted regulations in Chapter 18.51 (Floodplain Overlay District) governing development within, and adjacent to, the numerous floodplains in the City. They have been approved by FEMA and are incorporated herein by reference. These regulations define the 100-year floodplain as the most restrictive of either the aforementioned Montgomery-Watson Study or the Flood Insurance Rate Map (FIRM). The regulations apply to all new development, both public and private. As a result, not only are residential and commercial/industrial developments protected, but essential public facilities, such as fire stations, emergency shelters, hospitals, emergency command centers, and communication facilities are similarly protected.

Various levels of protection within and along waterways are established by the Floodplain Overlay District. These include:

- Generally prohibiting development within the floodway.

- Allowing only limited use and development within the flood fringe.

- Requiring proposed development projects to provide an appropriate hydrologic analysis demonstrating that the project will not result in impacts to upstream and downstream properties and that structures will either be elevated above the base flood elevation or be flood-proofed in accordance with federal regulations.

- Regulating uses and development on properties contiguous to the flood fringe and outside the floodplain which do not meet minimum protection standards.

- Reviewing proposed development located in designated scenic corridors.

- Reviewing all development permits to determine that the requirements of the Overlay District are satisfied.

- Reviewing all development permits to determine if the site is reasonably safe from flooding.

The level of the City's commitment to flood protection is evidenced by its participation in both the NFIP and the Community Rating System (CRS). In acknowledgment of Redding's regulatory efforts to protect citizens and property from flooding, Redding enjoys a "Class 7" rating, which provides a 15 percent reduction in flood insurance rates for Redding residents. This program allows the City to work closely with public agencies with responsibility for flood protection, such as the DWR and FEMA. A local "flood protection district," or similar entity, has not been formed within the Redding urban area.

In summary, City Council policies and the regulations of the City's Floodplain Overlay District (which are incorporated herein by reference) require that:

- Stormwater detention/retention facilities be incorporated into projects where necessary to ensure that flood elevations do not increase as a result of development.

- Uses in floodway and flood-fringe areas that will result in an increase in the floodplain elevation sufficient to impact other properties be restricted.

- Residential construction (including substantial improvements to existing structures) be elevated at least one foot above the base flood elevation.

- Nonresidential construction (including substantial improvements to existing structures) be elevated a minimum of one foot above the base flood elevation or be floodproofed in accordance with federal regulations and guidelines.

- New and replacement water supply and sanitary sewage systems be designed to minimize or eliminate infiltration of floodwaters.

Given the above policies and regulations, new development will be restricted within the 100-year floodplain. New development adjacent to the floodplain will be elevated/floodproofed as appropriate. While limited encroachments into the floodplain may be approved, this will only be done where there is no risk to the developing or abutting properties.

Goal PS2: Protect the lives and property of residents and visitors from flood hazards.

PS2A - Continue to participate in the National Flood Insurance Program to ensure the availability of federally sponsored floodplain insurance for City residents.

PS2B - Continue efforts to reduce flood insurance premiums for City residents by restricting floodplain development and participating in the federal Community Rating Service Program.

PS2C - Consider the update of the Community Development and Design Element and the General Plan Diagram to reflect the current floodplain mapping data provided by FEMA and local studies such as the City's Montgomery-Watson study. As funding is available, update these local studies to ensure that they reflect the best available information. Make maps available and accessible

showing updated flood projections from a 100-year storm event; update the maps as new information is available.

PS2D - Work with local, regional, State and Federal agencies to maintain an adequate information base, prepare risk assessments, identify strategies, and seek appropriate funding for mitigation and flood protection.

PS2E - Strive to preserve the river and creek corridors, and strictly limit development in areas subject to flooding from a 100-year storm event. Allow minor encroachments into floodplains if it can be demonstrated that such encroachments will not impact other properties or significantly contribute to a cumulative effect of other encroachments.

PS2F - Continue to utilize the Storm Drain Utility or similar measures, as funding mechanisms for necessary drainage improvements throughout the City.

PS2G - Continue to require that individual development projects mitigate their stormwater impacts in accordance with City Council Policy 1806 (Floodplain Development and Stormwater Detention) and/or other policy or regulations that the City may establish for this purpose.

PS2H - Continue to require that new development and redevelopment projects minimize hazards of flooding and demonstrate that existing and/or planned (on- or off-site) drainage facilities are sized to accommodate project storm runoff and to prevent or mitigate off-site increase in peak runoff rates and flood elevations.

PS2I - Require that critical public facilities, such as hospitals, emergency shelters, emergency command centers, fire and police stations, and similar facilities be designed to mitigate potential flood risk to ensure operation during a flood event, to the extent feasible.

PS2J - Adhere to the requirements of the City's National Pollutant Discharge Elimination System (NPDES) MS4 Permit, including, but not limited to the periodic inspection of stormwater channels for vegetation build-up or encroachment, trash and debris, silt and gravel build-up, erosion or any other obstruction to reduce the risk of localized flooding. Work to alleviate pre-existing flooding conditions that are a result of past practices and regulations.

Dam Inundation

The Federal Bureau of Reclamation and the California Office of Emergency Services (OES) does not make maps depicting potential inundation of floodwaters from an overflow or failure of Shasta or Whiskeytown Dams. The LHMP does address the risk of Shasta Dam overflow.

Goal PS3: Minimize the potential for catastrophic impacts as a result of regional dam failures.

PS3A - Utilize the Emergency Operations Center (EOC) for coordination of information and emergency response in the event of potential flooding created by uncontrolled releases from Shasta and Whiskeytown Dams.

Urban and Wildland Fire Hazards

The Redding area is subject to both urban and wildland fire hazards. Many residential, commercial, and industrial structures within the City are subject to fire hazards related to electrical short circuits, industrial accidents, arson, or simple carelessness. Urban fire risks are generally greatest in older structures constructed before strong building, zoning, and fire codes were enacted.

Wildland fire is a regular occurrence in much of California, owing to the regional weather and drought conditions that typically occur during the months of July through October. Redding is prone to wildland fire due to the regional weather phenomenon of extreme dryness, low relative humidity, high temperatures of 100 degrees or more, and high winds. In addition to direct fire impacts on people and property, wildfires remove stabilizing vegetation from hillsides, increasing the likelihood of future landslides. When wildfires burn at very high temperatures, soils can become hydrophobic, preventing the ground from absorbing stormwater and causing flooding downslope.

As of 2022, the largest historical wildland fire event observed in the Redding region is the Carr Fire in Shasta County (County) that burned 229,651 acres, destroyed over 1604 structures, killed 8 people and caused an estimated $1.659 billion in damages. Wildland fire hazards exist within the numerous open space areas and heavily wooded slopes found in the Planning Area. Areas of particular concern are those where wildland features and urban development interface. This area is often referred to as the Wildland-Urban Interface (WUI) region. The presence of urban uses adjacent to wildlands increases the potential for wildland fires and property damage or injury. These interfaces also allow fires to spread more rapidly to other urban and rural areas. Portions of the Planning Area designated as Very High Fire Severity Zone under the Local Hazard Mitigation Plan are shown on Figure 4. Approximately 39% of the City is identified as Very High Fire Severity Zone due to its topography, abundance of vegetative fuels and the variation in weather.

Within Very High Fire Hazard Severity Zone, there are existing homes, businesses, and public land uses, as well as associated infrastructure like major roadways, electrical transmission infrastructure, water and wastewater distribution systems, and communication facilities. Much of this development occurred prior to recent wildfire hazard mapping; the policies in this section provide guidance for future development in the Very High Fire Hazard Severity Zone and other areas within the WUI. The presence of urban uses adjacent to wildlands increases the potential for wildland fires and property damage or injury. These interfaces also allow fires to spread more rapidly to other urban and rural areas.

The City implements the most recent version of the Local Hazard Mitigation Plan (LHMP), which assesses risks from natural and human-caused hazards, including risks to people and facilities, and identifies mitigation actions to reduce or eliminate hazard risks in the County. The current LHMP, certified by FEMA, is specifically incorporated into this Element.

Goal PS4: Minimize the potential for loss of life, injury, and property damage resulting from urban and wildland fires.

PS4A - Strive to maintain an Insurance Service Office (ISO) rating of 3 or better.

PS4B - All new development and redevelopment projects should be designed to meet state and local standards for fire protection; encourage the upgrade of existing structures to current standards. Encourage the installation of smoke detectors in residential and commercial facilities constructed prior to the requirement of their installation, as appropriate.

PS4C - As resources allow, enforce existing codes and standards, to ensure all new and existing developments provide:

- Defensible space.
- Non-combustible design with appropriate building exterior and roofing materials.
- Spark-arresting systems, fire alarms, and fire sprinkler systems are installed.

PS4D - Continue to include the Fire Department in the project development review process to ensure projects adequately address safety, on-site fire protection, and compliance with applicable fire and building codes.

PS4E - Consider developing and funding a comprehensive vegetation management and weed-abatement program, beyond the wildfire mitigation through the Electric Utility, for City-owned properties and open-space areas, including those that are located in existing subdivisions and in new developments, to prevent and reduce the risk of fire.

PS4F - Facilitate post-fire recovery of open space areas by supporting efforts to stabilize slopes, control erosion, and replant areas with native species, as appropriate.

PS4G - Consider establishing a program to construct and maintain fire-access roads in ravine areas considered to have a very high fire danger to enhance the ability to suppress wildland fires. These roads need not be surfaced and may also function as part of the City's trail system. Erosion and impacts to native vegetation and natural features should be minimized.

PS4H - Work with local community services districts (i.e., water districts) to ensure that district systems are developed, maintained, and monitored to provide minimum fire-flow, rates, and peak-load capacity for fire suppression.

PS4I - Require that remote hillside developments maintain sufficient water supplies on-site, when appropriate, to provide wildland fire protection. Water supplies may be stored in the form of ponds, storage tanks, or other features acceptable to the Fire Marshal.

PS4J - Utilize techniques, as determined appropriate by the Fire Marshal, to reduce fire damage in those areas with a high wildland fire potential.

PS4K - Enforce subdivision regulations that generally limit cul-de-sac lengths to no greater than 600 feet and strive to ensure that sufficient emergency-vehicle turnaround areas are provided.

PS4L – Apply, as appropriate, subdivision regulations requiring each residential development having 50 or more dwelling units and each commercial development employing 150 or more people to have at least two connected points of public access as may be determined necessary by the Fire Marshal.

PS4M - Seek to construct emergency-vehicle access routes to open-space areas at optimal locations within projects during the development process, as funding or law allows. As funding and physical conditions allow, construct such access routes in existing developments where warranted.

PS4N - Strive to ensure new subdivisions have adequate fire protection measures such as multi-access for firefighting apparatus, noncombustible building construction, appropriate defensible space, and street widths and grade to accommodate emergency vehicles and evacuees simultaneously.

PS4O - Strive to maintain and augment mutual and automatic aid agreements with the California Department of Forestry & Fire Protection (CAL FIRE) and Shasta County. Support local fire protection agencies with efforts to seek funding for development and implementation of a continuous vegetation management program in fire hazard severity zones and WUI regions.

PS4P - Continue to promote fire prevention through education and public-awareness programs in partnership with local, State and Federal agencies, as resources permit. Update the fire hazard severity zone mapping as new data becomes available and strive to ensure availability and accessibility of these maps to the community.

PS4Q - Work toward educating the residents on the importance of fire safety, prevention, and emergency preparedness, including vegetation management, decreasing fuel loads, hardening homes and structures, maintaining defensible space, and public safety notifications, to the extent feasible.

PS4R – Work with CAL FIRE and other appropriate public safety agencies to identify evacuation routes and their capacity, safety, and viability as required by AB747, and residential development in any identified fire hazard zone that does not have at least two emergency evacuation routes as required by SB99 within 24 months of adoption of this General Plan.

Crime Prevention

Police officers are among the most visible representatives of City government and largely influence the public's attitude toward the quality of City services. They are responsible for maintaining the quality of life by protecting people and property, promoting community order through crime prevention and broad-based outreach and educational programs geared to both

children and adults, apprehending and participating in the prosecution of criminals, and regulating noncriminal activities such as traffic control.

As the needs and dynamics within Redding change over time, the Police Department explores innovative ways to involve all sectors of the community in its crime-prevention efforts. Community-oriented policing, which emphasizes strong citizen involvement, is the preferred approach for providing law enforcement services. Ongoing development and maintenance of partnerships between the Redding Police Department and individual neighborhoods; Neighborhood Watch groups; businesses; school districts; churches; other City Departments; and various local, state, and federal agencies will be utilized to implement that approach. Opportunities to improve efficiencies and the quality of service through the use of improved technology and automation should also be pursued.

This section focuses on the prevention of crime through the use of proven programs, improved technology, proper site planning, project design, and education to serve and protect the long-term health, safety, and well-being of the community. Redding Police Department in partnership with the Shasta County Mental Health Department has implemented the Crisis Intervention Response Team (CIRT) initiative. The team, consisting of a sworn law enforcement personnel and mental health professionals, is responsible for augmenting and supplementing patrol response to a report of a person in crisis in addition to monitoring calls for service. The objective of the program is to help vulnerable residents in need with appropriate housing and mental health resources.

Goal HS5: Provide a safe and secure environment for people and property in the community.

PS5A - Strive to maintain public confidence in the ability of the Police Department to provide quality police services to the community.

PS5B - As funding allows, continue a department-wide expansion of community-oriented policing services and activities including the Crisis Intervention Response Team (CIRT) or similar program, park rangers, bike patrols, Neighborhood Police Unit, School Resource Officers, Community Work Program, traffic enforcement, and other appropriate efforts. Strive to ensure that these services will:

- Be proactive and responsive to citizens' needs.
- Address quality of life issues identified by the community.
- Provide crisis assistance for those suffering from mental health illness, addiction and/or lacking shelter.
- Promote positive community relationships.
- Incorporate technological advancements to increase public and personal safety.

PS5C - Continue to facilitate broad community involvement to reduce crime-producing factors within the City through the following actions as appropriate:

- Actively working with other City Departments to cooperatively address code enforcement and quality of life issues.

- Working with the County of Shasta and other non-government entities to assist those in need.

- Assisting neighborhoods in the civil abatement process.

- Developing new Neighborhood Watch/Business Watch groups and encouraging those groups to participate in community revitalization efforts.

- Expanding educational programs designed to reinforce positive juvenile behavior.

- Establishing a Department Citizen Academy to educate citizens on the Department/law enforcement.

PS5D - Coordinate law enforcement planning with local, regional, state, and federal plans through the Shield Regional Training Center or other appropriate facility.

PS5E - Continue to maintain an efficient, well-trained, and adequately-equipped Police Department, including the needs of special-response teams for extraordinary emergency incidents.

PS5F - Consider expanding Police services to the Redding Airport, if and when necessary, to support the growth/needs for security and public safety.

PS5G - Strive to achieve and maintain optimal response times for all call priority levels to provide adequate police services for the safety of all City residents and visitors.

Goal PS6: Reduce the potential for criminal activity and vandalism through proper site design and land use planning.

PS6A - Encourage innovative site planning and design to deter criminal activity in new development.

PS6B - Collaborate with appropriate agencies to incorporate technological advancements in public safety, including the ability to maintain optimal radio and other communications between agencies. Balance the need to provide safety features with privacy rights and other community goals to promote a safe environment for all residents.

PS6C - Encourage the use of proven best practices such as Crime Prevention Through Environmental Design (CPTED) principles in urban and social planning for crime reduction, especially in residential, commercial, and public areas.

Airport-Related Hazards

There are two airports located within the Planning Area. The Redding Regional Airport (formerly Redding Municipal Airport), located in the southeast portion of the City, is classified as a Class I Regional airport under the Federal Aviation Administration's (FAA) airport classification system. for commercial airline operations. Benton Airpark, located close to Downtown Redding at Placer Street and Airpark Drive, is a general aviation airport which provides commercial reliever support to the Redding Regional Airport. Safety issues associated with airports are primarily concerned with hazards related to flight and hazards related to those on the ground within the vicinity of flight operations.

Flight hazards may be:

- Physical (tall structures that could obstruct airspace).
- Visual (glare caused by lights or other bright objects).
- Electronic (uses that interfere with aircraft instruments or communication systems).

Airport operations tend to increase with urban growth. These circumstances elevate the potential for aircraft accidents because a greater number of operations begin to occur in the presence of increased development within the Airport environs. However, the increased risks and flight hazards listed above can be reduced through a variety of planning methods, including height restrictions, density restrictions, and the avoidance of incompatible land uses.

Goal PS7: Minimize the potential for, and damage resulting from, aircraft accidents.

PS7A - Discourage development that could endanger the safety of air travelers and persons residing or working in the Airport environs by adhering to the land use policies contained in the Comprehensive Land Use Plans, Airport Approach Zone provisions of the Municipal Code, guidance provided by the California Airport Land Use Planning Handbook, and applicable Shasta County Airport Land Use Commission (ALUC) resolutions.

PS7B - Continue to update the Airport Emergency Plan and ensure it complies with State and Federal regulations.

PS7C - Consider establishing avigation easements for new development in vicinity of the Redding Regional Airport and Benton Airpark as appropriate to address overflight noise and other potential aviation-related impacts.

Emergency Response

The City's Local Hazard Mitigation Plan (LHMP) was originally adopted in 2005 in response to the federal requirement for States to comply with the Federal Disaster Mitigation Act (DMA) of 2000 in order to receive any mitigation monies and post disaster-relief funding. In order to remain eligible for funding, the DMA requires that mitigation plans be periodically reviewed and updated.

The last update to the LHMP was adopted in 2023. The plan provides a list of actions that may assist the City of Redding in reducing risk and preventing loss from future hazard events. The actions address hazard issues, as well as specific activities for wildland fire, flood, hazardous material, severe weather, earthquakes, utility disruption, aviation disaster, chemical, biological, radiological, nuclear, explosives (CBRNE), pandemic/ epidemic, dam overflow or failure, and volcanic events.

While the LHMP lists measures to reduce risks and prevent loss, it is the City's Emergency Operations Plan, adopted in September 2014, that addresses the City's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and nuclear defense operations. It provides operational checks relating to various emergency situations and identifies the overall responsibilities of the organization and individual departments for protecting life and property and ensuring the well-being of the population.

Matrices within the plan identify the local agencies and private organizations responsible for accomplishing the activities assigned to each functional branch and state and federal agencies that have capabilities to support local operations. The document also identifies circumstances that necessitate activation of the City's Emergency Operations Center (EOC). The Incident Command System is utilized for on-scene management of field operations. This system provides a standardized organizational structure and terminology/procedures which can be applied in a variety of emergency situations.

Event-Specific Plans are included to address:

- Imminent/Actual Flooding in the City of Redding.
- Hazardous Materials Response.
- Major Fire Emergency Response.
- Earthquake Emergency Response.
- Emergency Medical Services–Mass Causality and Mass Fatality Operations.

The Shasta County Office of Emergency Services (OES) developed a similar document, the Standard Emergency System Multi-Hazard Function Plan (SEMS MHFP) in December 2021. Local agencies, such as the Cities of Redding, Anderson, and Shasta Lake and various special districts, are identified as participants within the system. The County's Plan addresses necessary coordination among the agencies and establishes standard operating procedures.

Goal PS8: Maintain and enhance the City's Emergency Response capabilities and preparedness.

PS8A - Maintain and update the City's Emergency Response Plan and Local Hazard Mitigation Plan, as necessary.

PS8B - Encourage the involvement of local hospitals, schools, major businesses, utilities, the Red Cross, places of worship, and other service providers in emergency preparedness planning and training. Work toward educating the residents on emergency response, disaster preparedness protocols and procedures, and disaster risk reduction.

PS8C - Collaborate with local and regional jurisdictions to periodically review, exercise and test emergency-service equipment, plans, and shelters so that they are better prepared for immediate operation in the event of an emergency.

PS8D - Consider requiring that residences and businesses maintain visible and clearly legible street address numbers, as may be required by state and local regulations, to shorten the response time of emergency personnel.

PS8E - Strive to ensure the continued functioning of critical facilities and the establishment of cooling, warming and clean air centers, as a part of an extreme weather preparedness program. Endeavor to partner with community groups and jurisdictions to develop and implement refuge centers in case of extreme weather, disease, or evacuation due to declared emergency. Consider adaptive reuse of public and community facilities to serve as shelters during crisis events.

PS8F - Maintain, update, and make publicly available all comprehensive emergency and evacuation plans and maps which address emergency preparedness, evacuation and rescue, information on hazardous materials, location and information on the protection of critical facilities, and development guidelines to reduce the risk of panic during a disaster and to enhance preparedness, as appropriate.

Hazardous Materials

Hazardous materials management includes the identification of and proper transport, use, storage, and disposal of hazardous materials. Hazardous materials include liquids, solids, and gases which, by themselves or when placed in contact with other materials, can result in a threat to life, the environment, and/or property.

The Shasta County Environmental Health Division is the primary agency responsible for overseeing the commercial use and storage of hazardous materials within the Planning Area. In addition to use and storage, hazardous materials are also transported through the Planning Area by both rail and truck. County roads and City streets are used to transport locally generated wastes from the source to the regional highway system.

The City's 2014 Emergency Operations Plan contains a Hazardous Materials Emergency Response Plan replaced the Hazardous Materials Incident Plan that was adopted by the City in 1993. The purpose of the plan is to minimize damage to human health, natural systems, and property caused by the release of hazardous materials. Local responsibilities are principally focused on discovery, notification, evaluation, initiation of immediate protective actions, and monitoring of recovery operations. The Fire Department is designated as the Incident Command (IC) authority for all hazardous materials spills and emergencies occurring within the jurisdictional limits of the City, excluding state and federal lands or property.

Goal PS9: Reduce the risk of personal injury, property damage, and environmental degradation resulting from the use, transport, disposal, and release/discharge of hazardous materials.

PS9A - New developments that produce, store, utilize, or dispose of significant amounts of hazardous materials or waste should incorporate appropriate state-of-the-art project designs and building materials to protect employees and adjacent land uses, as required by state and local regulations.

PS9B - Continue operation of the City's Household Hazardous Waste Collection Program to encourage proper disposal of products containing hazardous materials or wastes.

PS9C - Where soils containing toxic or hazardous substances are identified, remediation to the satisfaction of the agency having jurisdiction should occur prior to ground disturbance allowed by any permits for new development, or as otherwise required by the responsible agency.

PS9D - Strive to route vehicles carrying potentially hazardous materials along transportation corridors that reduce the risk of exposure to the public and sensitive environmental areas.

PS9E - Take appropriate actions to implement the Hazardous Materials Emergency Response component of the City's Emergency Operations Plan in the event of a hazardous material spill, accident, or release within Redding's corporate limits.

PS9F - Encourage the state to regularly monitor and report on the types and amounts of hazardous materials being transported through the Planning Area on state highways and Interstate 5.

PS9G - Encourage the State Department of Health Services and the California Highway Patrol to review permits for radioactive materials on a regular basis and enforce public-safety standards for the use of these materials, including the placarding of transport vehicles.

PS9H - Endeavor to educate residents and businesses on the need to reduce or eliminate the use of, and/or proper disposal of, hazardous materials and products. Encourage the use of safe, non-toxic, environment-friendly equivalents for community well-being.

PS9I - Strive to attract and maintain clean industries and businesses in the City and discourage the expansion of industries, with exception of healthcare and related medical facilities, that require on-site treatment of hazardous industrial waste.

PS9J - Consider enhancing Hazardous Material Emergency Response through a partnership with the Office of Emergency Services (OES) to attract additional resources including funding, to the region.

Critical, Sensitive, and High-Occupancy Facilities

"Critical facilities" are those whose continued functioning is necessary to maintain public health and safety following a disaster and those whose damage or failure could pose hazards to life and property well beyond their immediate vicinity. Examples include police/fire command and equipment centers, hospitals, emergency shelters, and utilities, including electricity, natural gas, water, and sewage treatment.

"Sensitive facilities" include those used for the manufacture, storage, or sale of hazardous materials, as well as socially significant facilities, such as schools; nursing homes; and housing for the elderly, disabled, or mentally ill.

"High-occupancy facilities" are public or private structures used for housing or the assembly of large groups. Local examples would be the Redding Civic Auditorium, Cascade Theater, convention facilities associated with hotel development, schools, sport stadiums, rodeo grounds and similar facilities.

Goal PS10: Ensure the continued functioning of essential, critical, sensitive, and high-occupancy facilities following a disaster.

PS10A - To the extent feasible, locate new critical, sensitive, or high-occupancy facilities outside the high hazard areas, and ensure adequate street access to these facilities.

PS10B - Encourage owners of existing critical, sensitive, and high-occupancy facilities with significant seismic vulnerabilities to upgrade, relocate, or phase out the facilities as appropriate.

PS10C - Strive to ensure operational readiness of the Emergency Operations Center (EOC) in conjunction with other local, State, and Federal agencies. Work toward conducting training for staff on, and maintaining, testing, and updating plans and equipment to meet current standards, as necessary.

PS10D - Partner with local, regional, and federal agencies, as appropriate, to seek grants and other opportunities towards development and expansion of clean air centers, building ventilation upgrades, and other available and accessible technological advancements to provide better air quality to vulnerable residents to reduce negative health impacts of wildfires.

Evacuation Routes

As described within the preceding sections of this element, the Planning Area is subject to a variety of potential hazards. Evacuations may be necessary from time to time, and the routes utilized will often be dependent upon the type, location, and extent of the emergency. Although it is impossible to identify a set of evacuation routes which will apply to all situations, Figures 5 and 6 identify those routes in, through, and out of the City considered most suitable for mass evacuations. This information should be used only as a guide. Specific routes will be determined and publicized on a case-by-case basis during actual emergencies.

The City's Emergency Operations Plan contains several proposed evacuation routes correlated to specific events, including regional dam failures, slow rise flooding, earthquakes, and wildland fire. This document and its referenced evacuation routes should be used for both disaster-preparedness training and public-awareness programs.

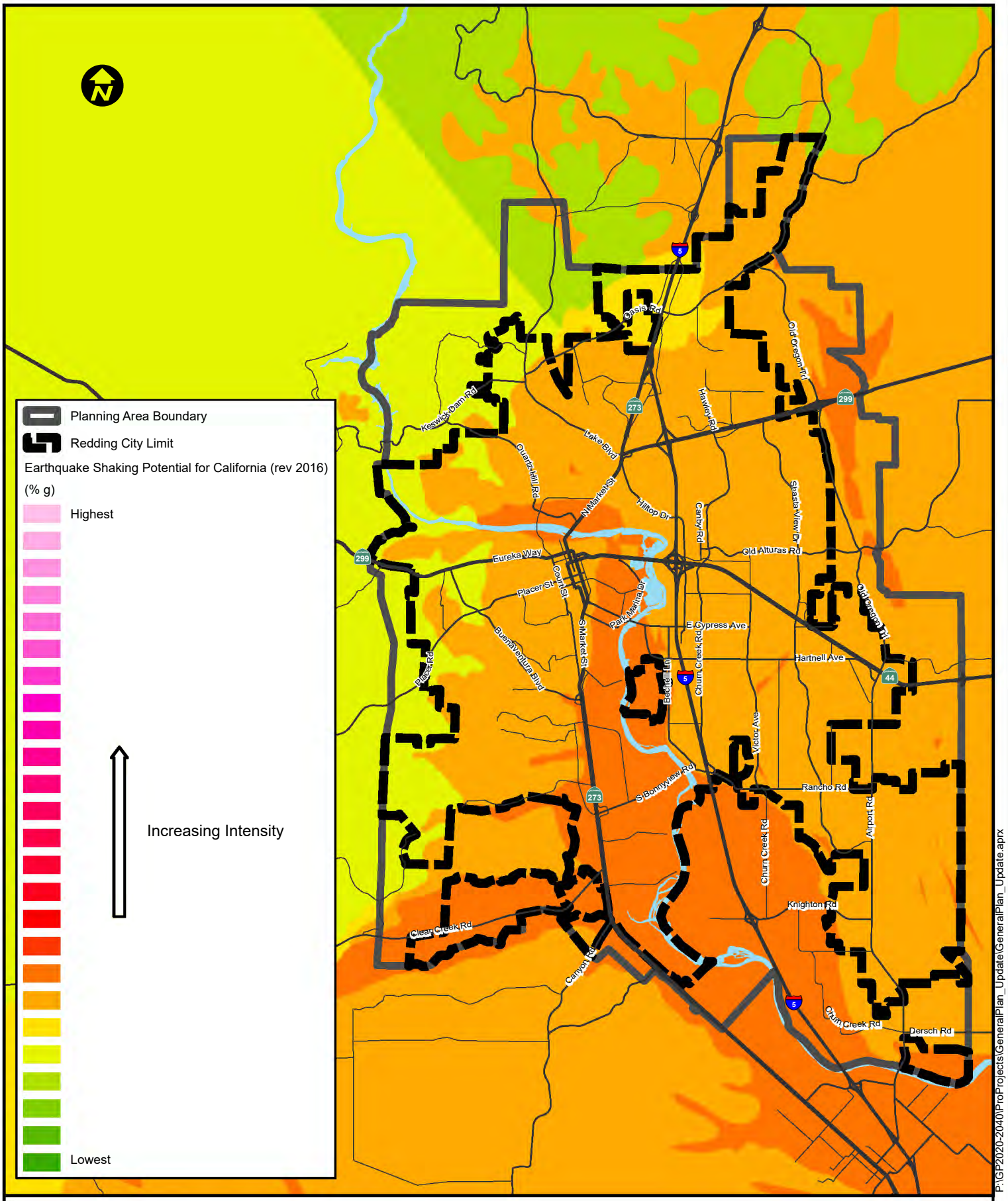
Goal PS11: Plan for the orderly evacuation of people and their possessions during emergency and/or disaster situations.

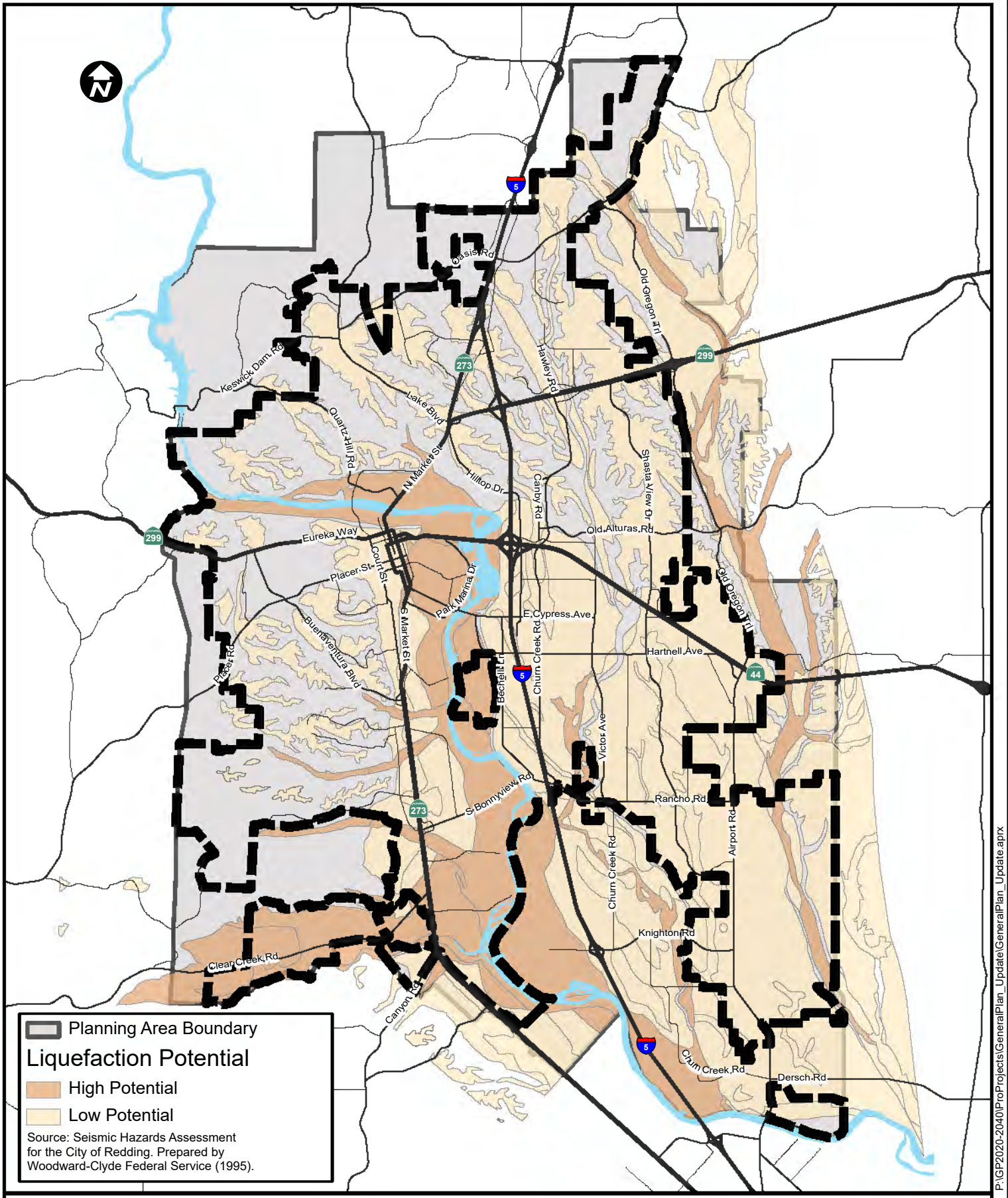
PS11A - Strive to ensure that emergency personnel receive adequate training in traffic-control and evacuation procedures as required by the City's Emergency Operations Plan.

PS11B - Evacuation routes contained within the City's Emergency Operations Plan should be published and reinforced in public materials as a general guide for improving the awareness and preparedness of residents located in high-hazard areas, as appropriate.

PS11C - Consider implementing an emergency evacuation plan and consistently educate residents on:

- Access: evacuation routes laid out for residents to use in case of emergency.
- Signage: signage, wayfinding, and designated evacuation routes.
- Communication: timely notices that may arrive through multiple communication avenues.
- Assistance: available assistance programs to aid resident evacuation during emergency.

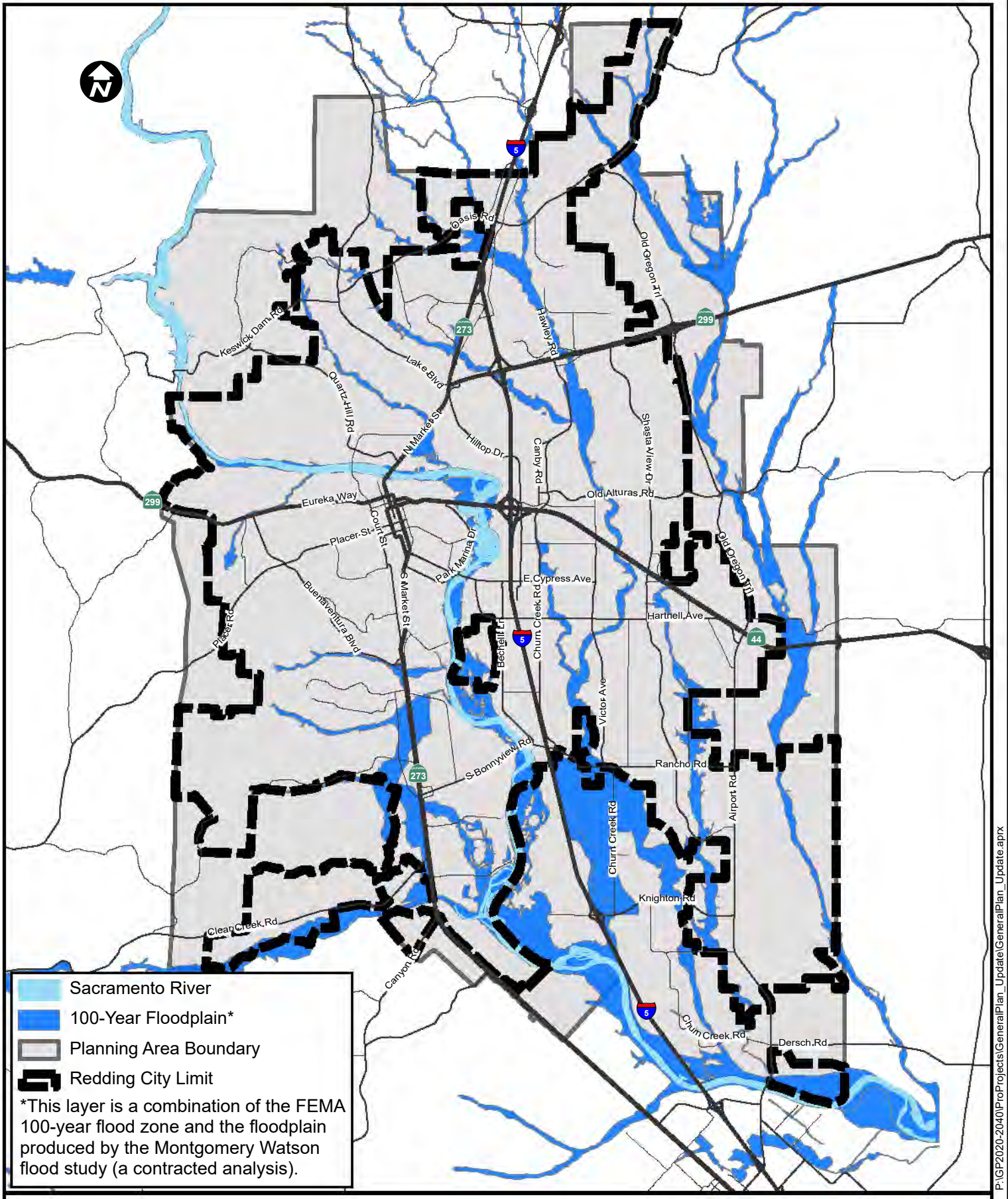

Planning Area Boundary
Redding City Limit
Earthquake Shaking Potential for California (rev 2016)
(% g)
Highest
Lowest
Increasing Intensity
Oasis Rd
Old Oregon Trl
Hawley Rd
Keswick Dam Rd
Lake Blvd
Quartz Hill Rd
N Market St
Hilltop Dr
Canby Rd
Shasta View Dr
Old Alturas Rd
Eureka Way
Court St
Placer St
Park Marina Dr
E Cypress Ave
S Market St
Buenaventura Blvd
Riggs Rd
Bechelli Ln
Churn Creek Rd
Hartnell Ave
Victor Ave
St Bonnyview Rd
Rancho Rd
Airport Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Dersch Rd
299
273
5
44
Miles
0
1
2
PS-1
Ground Shaking Potential
Print Date: April 13, 2023
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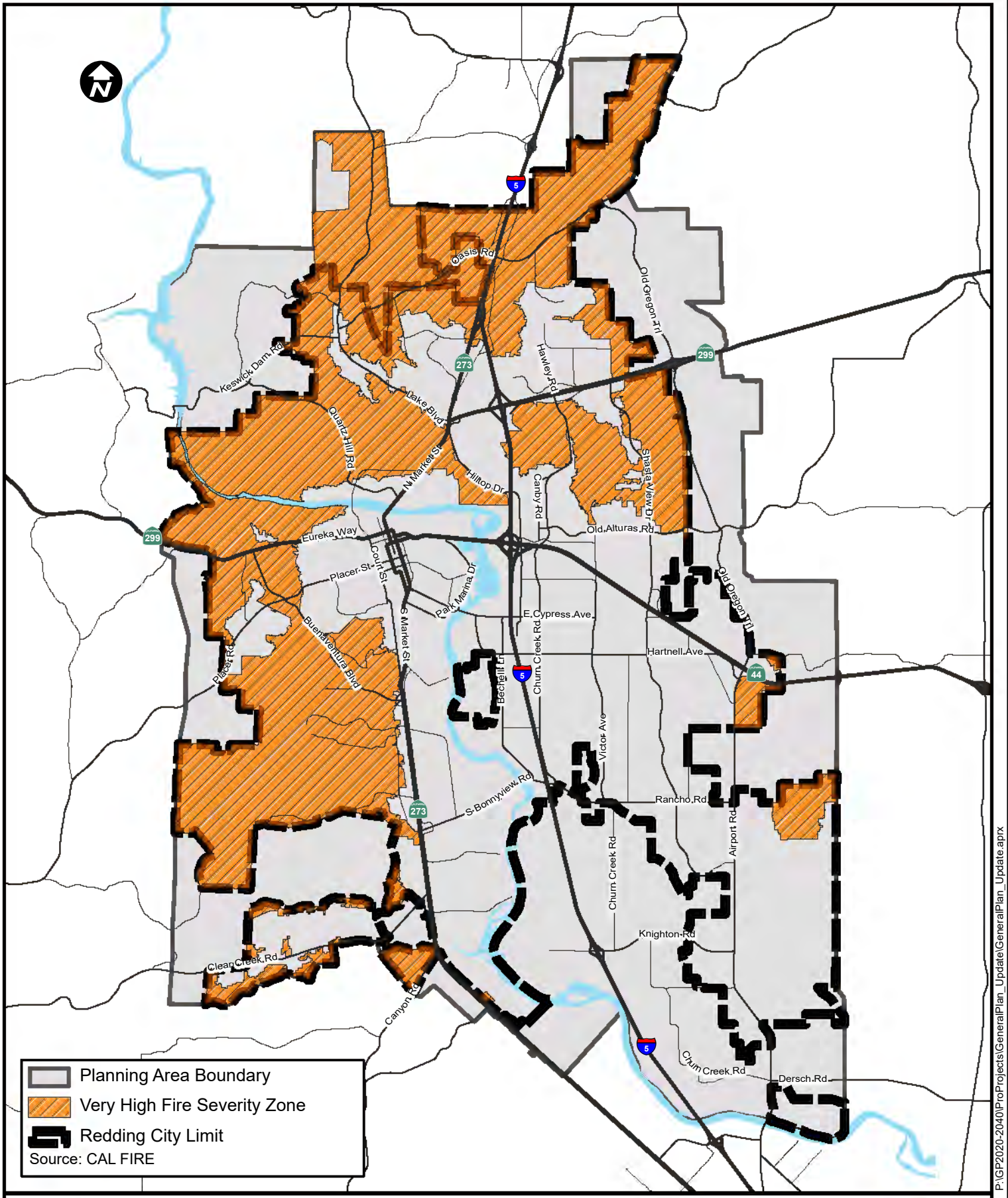


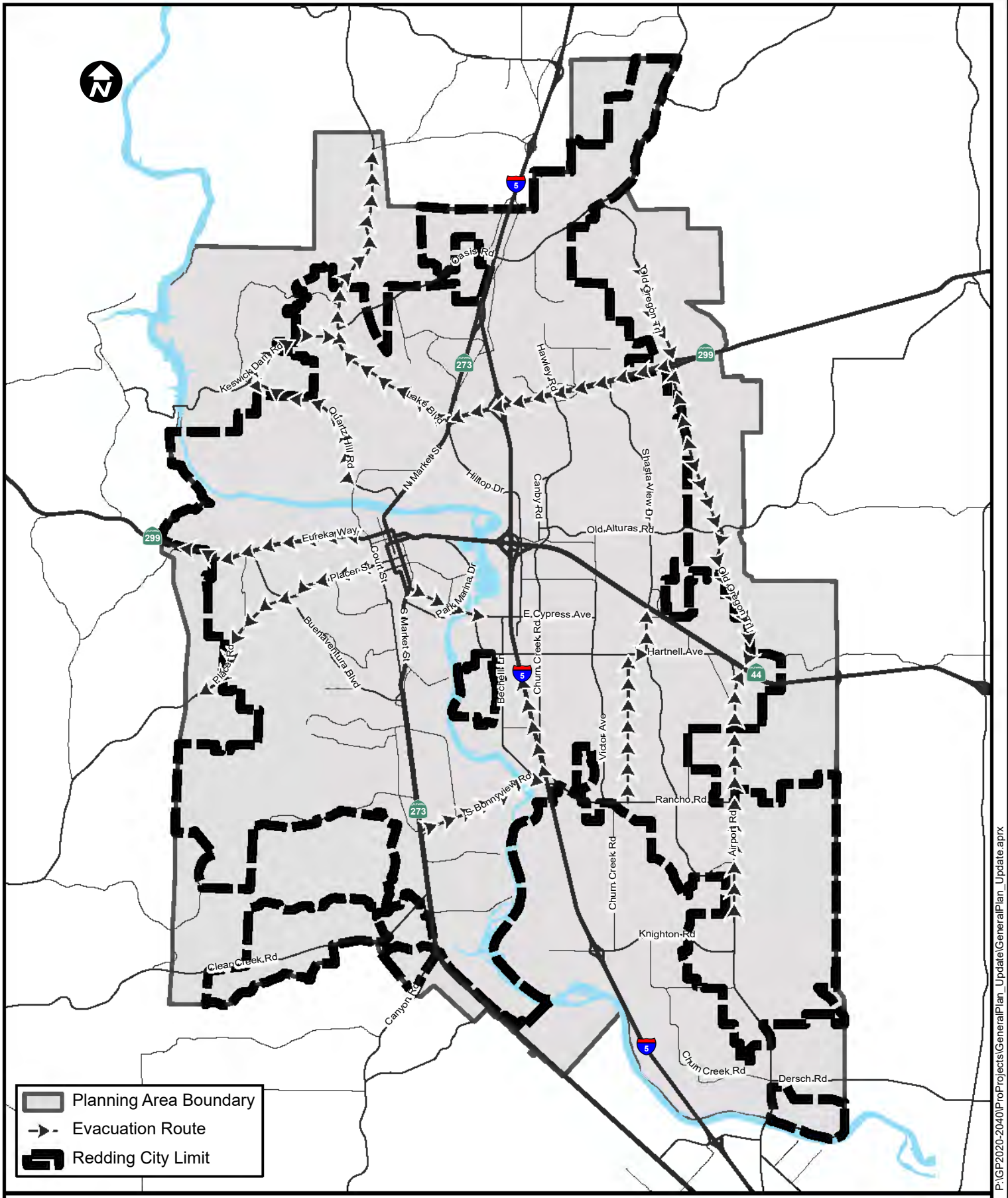
PS-2
Liquefaction Potential

Print Date: April 13, 2023

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Oasis Rd
Old Oregon Trl
Keswick Dam Rd
Lake Blvd
Hawley Rd
Quartz Hill Rd
N Market St
Hilltop Dr
Canby Rd
Shasta View Dr
Old Alturas Rd
Eureka Way
Placer St
Court St
Park Marina Dr
E Cypress Ave
Old Oregon Trl
Buenaventura Blvd
S Market St
Placer Rd
Bechelli Ln
Churn Creek Rd
Hartnell Ave
Victor Ave
S Bonnyview Rd
Rancho Rd
Airport Rd
Churn Creek Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Churn Creek Rd
Dersch Rd
5
273
299
44
Sacramento River
100-Year Floodplain*
Planning Area Boundary
Redding City Limit
*This layer is a combination of the FEMA 100-year flood zone and the floodplain produced by the Montgomery Watson flood study (a contracted analysis).
Miles
0
1
2
PS-3
100-Year Floodplain
CITY OF REDDING GIS GIS DIVISION
Print Date: April 13, 2023
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Oasis Rd
Old Oregon Trl
Keswick Dam Rd
Lake Blvd
Quartz Hill Rd
N Market St
Hilltop Dr
Hawley Rd
Canby Rd
Shasta View Dr
Old Alturas Rd
Eureka Way
Placer St
Court St
Park Marina Dr
E Cypress Ave
S Market St
Placer Rd
Buenaventura Blvd
Bechelli Ln
Churn Creek Rd
Hartnell Ave
Victor Ave
S Bonnyview Rd
Rancho Rd
Airport Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Churn Creek Rd
Dersch Rd
299
273
5
44
Planning Area Boundary
Very High Fire Severity Zone
Redding City Limit
Source: CAL FIRE
0
1
2
Miles
PS-4
Very High Fire Severity Zone
Print Date: April 13, 2023
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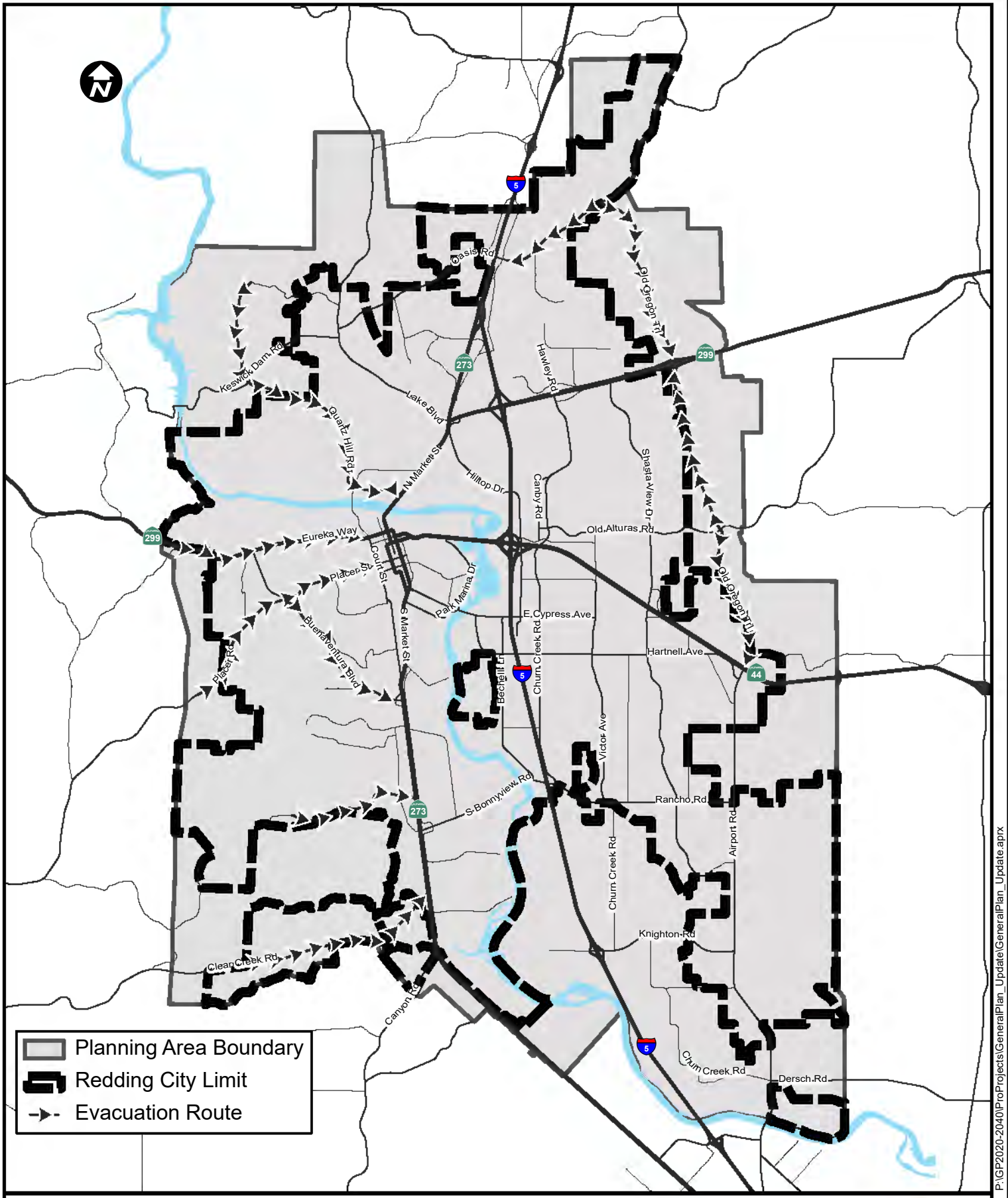


Miles
0 1 2

PS-5
Flood Evacuation Routes

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PS-6
Wildfire Evacuation Routes

Print Date: April 13, 2023

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Public Review Draft Noise Element

Purpose and Intent

The simplest definition of noise is "unwanted sound." This definition is necessarily subjective as people react differently to sound, and even react differently to the same sound. However it is perceived, noise is a quality-of-life issue for residents, as noise at the wrong time can have adverse effects on people by interfering with sleep and communication, can cause physiological and psychological stress, and, in extreme circumstances, health impacts. Too much noise decreases the enjoyment of the home and can interrupt recreational activities.

Noise can also be a good indicator of a vibrant community or activity area such as a park or a school playground. Commercial activity can also generate pleasant noise such as outdoor dining, concert venues, and markets. One focus of the Noise Element is to identify areas where outside noise is both acceptable and expected.

The Noise Element helps with planning the location of planned noise-sensitive land uses and considers noise exposure when placing facilities that generate significant volumes of noise. For purposes of this Noise Element, "noise-sensitive areas and uses" include residential areas, parks, schools, churches, hospitals, and long-term care facilities. It is also important that noise-generating uses, such as industry and the airport, be protected from incursion by noise-sensitive uses to avoid noise complaints that may result in impacts to the operation of these fixed noise sources.

Specific topics addressed in the Noise Element include:

- Noise Environment and Measurements.
- Transportation Noise Sources.
- Fixed Noise Sources.
- Vibration

Authority

Government Code Section 65302(f), requires that the General Plan include a Noise Element which identifies and appraises noise in the community. The Noise Element is required to recognize noise levels for sources such as highways, major roads, rail, aviation, commercial activity, and industry.

Terminology

As in many technical fields, terms are used to explain different aspects of analysis. For noise, understanding the following terms will help when reading this element.

- ***Decibel (dB) -*** This is a unit for measuring the amplitude of a sound that is based on a logarithmic scale that compresses the wide range in sound pressure levels to a more usable range of numbers.

- ***A-weighted decibels (dBA) -*** This refers to the sound pressure level in decibels as measured on a sound level meter using the A-weighting network. This method de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.

- ***Day-Night Average Sound Level (Ldn) -*** This is a type of noise measurement that describes the average noise level over a 24-hour period after the addition of 10 decibels to sound levels in the night after 10 p.m. and before 7 a.m. The 10 dBA adjustment accounts for our greater sensitivity to nighttime noise and the fact that lower ambient levels at night tend to make noise events, such as aircraft flyovers, more intrusive.

- ***Community Noise Equivalent Level (CNEL) -*** Similar to Ldn, the CNEL is the 24-hour average noise level after the addition of 5 dB to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dBA to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.

- ***Equivalent Continuous Noise Level (Leq) -*** Leq is a noise descriptor that can be thought of as the average noise level during a period of time. The average noise level is based on the energy content (acoustic energy) of the sound. It is typically computed over one-, eight-, and 24-hour sample periods.

- ***Noise Contours -*** Noise contours are a graphical representation of projected noise exposure levels associated with noise sources such as roadways, aircraft, and railroad operations. They are expressed as the physical distance at which different noise levels can be heard from the noise source.

Noise Environments & Measurements

All sound levels referred to in this element are A-weighted which de-emphasizes the very low and very high frequencies of sound in a manner like the human ear. A-weighting is a better measurement of human annoyance and health effects.

Ambient noise, which is the total noise in an environment, is usually measured with an A-weighted decibel scale (dBA). However, ambient noise varies over time; therefore, other metrics that give an average noise level for a period of time are used. Such metrics include the energy-equivalent noise level (Leq), the day-night average noise level (Ldn), and the community noise equivalent level (CNEL). Leq is an hourly average, while Ldn and CNEL are 24-hour weighted averages.

Ambient noise monitoring was conducted in October 2022 to determine a baseline noise level at different environments. The results of the noise measurements can be found in Appendix N-1 of the General Plan Environmental Impact Report.

Acceptable Noise Levels

Guidelines for noise-compatible land use are based upon the California Office of Planning and Research's (OPR) Noise Element Guidelines. The noise compatibility guidelines provide an objective means of determining whether the existing or predicted noise is generally acceptable. The noise levels should not be considered absolute as many factors can affect both the generation and the perception of noise. Used as guidelines, the noise level table can determine when noise should be considered during the project design process.

Table N-1 establishes the acceptable noise levels by land use type and sensitivity for noise from transportation sources such as roads, rail, and aircraft. Outdoor activity areas refer to places where people might gather, such as a back yard or community space, and not briefly transited areas such as a parking lot or street-facing landscape area.

Table N-2 provides acceptable exterior noise levels for non-transportation sources such as industrial parks, and loading docks. Because a vibrant city can sometimes have noisy elements, Table N-2 also allows for periodic noise events such as outdoor concerts, and live music at dining venues. Some land uses, such as mixed commercial and residential uses, have a higher acceptable exterior noise threshold because they are near centers of activity or along major roadways. The City implements the California Building Code (CBC) that establishes a 45-dBA maximum for interior noise. Provided the interior noise level can be met, the exterior noise levels for various types of mixed-use developments can be higher than would be expected in a purely residential neighborhood.

Table N-1, Maximum Acceptable Exterior Noise Levels for Transportation Noise Sources

Land Use	Daytime (CNEL)[1]	Nightime (10 PM to 7 AM)[1]
Residential -- Low Density Single-family, Duplex, Mobile Homes	60 dBA	50 dBA
Residential – Multi-Family	65 dBA	50 dBA
Mixed-Use [2]	70 dBA	60 dBA
Lodging – Hotels, Motels	65 dBA	--
Schools, Libraries, Churches, Hospitals, Nursing Homes	65 dBA	--
Theaters, Auditoriums, Event Centers, Amphitheaters	70 dBA	--
Sports Area, Spectator Sports	70 dBA	--
Playgrounds, Neighborhood Parks	70 dBA	--
Golf Courses, Riding Stables, Water Recreation	75 dBA	--
Retail Commercial	70 dBA	
Office Buildings – Business, Commercial and Professional	70 dBA	--
Industrial, Manufacturing, Agriculture, Utilities	75 dBA	--

[1] Noise standards are to be applied at outdoor activity areas with the greatest exposure to the noise source. When it is not practical to mitigate exterior noise levels at the patios or balconies of multi-family dwellings, a common area or onsite park may be designated as the outdoor activity area.

[2] "Mixed-Use" refers to a mix of residential and supporting commercial uses generally located within the same building or block.

Table N-2, Maximum Acceptable Exterior Noise Levels for Non-Transportation Noise Sources

Land Use	Daytime (CNEL)[1]	Nightime (10 PM to 7 AM)[1]
Residential	60 dBA	50 dBA
Mixed Use[2]	70 dBA	60 dBA
Non-Residential	70 dBA	60 dBA

[1] Noise standards are to be applied at outdoor activity areas with the greatest exposure to the noise source. When it is not practical to mitigate exterior noise levels at the patios or balconies of multi-family dwellings, a common area or onsite park may be designated as the outdoor activity area.

[2] "Mixed-Use" refers to a mix of residential and supporting commercial uses generally located within the same building or block.

Outdoor Activities

Festivals and performances can occur in nearly any space subject to appropriate discretionary permits that regulate conduct, including noise. In the Downtown and other commercial spaces however, outdoor dining or performance venues could include music or other entertainment that could generate noise on a more regular basis. With mixed-use development there is potential for noise associated with restaurants to affect the residential uses located within or near the establishment. Of specific concern is noise generated this type of activity during the nighttime hours (10 p.m. to 7 a.m.). This Element supports appropriate outdoor activity in mixed-use, commercial, and identified General Plan Opportunity and Focus Areas that provide for a mix of residential and non-residential uses. Provided interior noise levels for residential units in mixed-use developments remain below 45 dBA and do not exceed the exterior noise standards in Table N-2, noise from adjacent uses is allowed.

Noise Contours

Noise contours are a graphical representation of projected noise exposure levels associated with noise sources such as roadways, aircraft, and railroad operations. The contour lines show the distance at which different noise levels can be heard from the noise source. Noise contours are used as a guide for determining if a new land use is appropriate and/or whether noise mitigation measures should be required.

Noise contours for transportation-related noise sources are stated in terms of community noise equivalent level (CNEL) or day-night average level (Ldn). Noise contours for non-transportation-related noise are stated in terms of the hourly energy-equivalent noise level (Leq) because the duration of the noise can vary, as can the timing. The existing noise contours for roadway and rail noise are shown in Figure N-1. These are based on a baseline year of 2020. Figure N-2 shows the projected noise contours for roadway and rail noise for the anticipated level of development within the Planning Area projected by this General Plan by 2045.

It is important to know that buildings, topography, and the type of noise can affect the amount of noise heard by a person. For this reason, the contours should be used as a general guideline in determining whether additional analysis for noise exposure is warranted rather than a specific noise measurement at a given location.

Transportation Noise

Roadways

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-ROAD-77-108) was used to develop Ldn contours for all highways and major roadways in the Redding Planning Area. The FHWA Model is the analytical method presently favored for traffic noise prediction by most state and local agencies, including the California Department of Transportation (Caltrans). The FHWA Model predicts distances to the 70, 65, and 60 CNEL contours. It also predicts hourly Leq values for free-flowing traffic conditions, and it is generally considered to be accurate within 1.5 dB.

To establish the baseline noise conditions, traffic data representing annual average traffic volumes for existing conditions on major roadways was obtained from the regional traffic model to allow calculations for existing and projected traffic volumes. Distances from the centerlines of selected roadways to the 60, 65 and 70 dB CNEL contours are summarized in Table N-3. These distances should be treated as estimates, since actual distances may vary due to factors such as road curvature, roadway grade, shielding by local topography or structures, and elevated roadways.

Table N-3, Noise Contours from Centerline for Roadways

ROADWAY	SEGMENT	EXISTING			FUTURE		
		70 DBA	65 DBA	60 DBA	70 DBA	65 DBA	60 DBA
I-5	N of Twin View Blvd	309	667	1,436	261	561	1,209
I-5	N of SR-299 / S of Twin View Blvd	325	700	1,509	280	604	1,301
I-5	N of SR-44 / S of SR-299	371	799	1,722	320	689	1,484
I-5	S of SR-44 / N of Cypress Ave	430	927	1,996	364	784	1,690
I-5	S of Cypress Ave / N of Churn Creek	402	866	1,865	335	722	1,556
I-5	S of Churn Creek Rd	396	853	1,837	324	699	1,505
SR-44	E of Butte St / W of I-5	176	379	816	157	339	730
SR-44	E of I-5 / W of Hilltop Dr	157	338	727	142	306	659
SR-44	E of Hilltop Dr / W of Victor Ave	138	297	639	119	257	554
SR-44	E of Victor Ave	166	358	771	154	332	716
SR-44	E of Shasta View Dr	138	296	639	118	255	549
SR-44	E of Airport Rd	108	233	503	94	202	435
SR-273	N of Lake Blvd	53	114	246	50	107	230
SR-273	N of Benton Dr/S of Lake Blvd	63	135	291	58	124	268
SR-273	S of Market/Pine	46	98	212	42	90	194
SR-273	S of Buenaventura Ave	86	184	397	77	166	358
SR-273	S of S. Bonnyview Rd	92	198	426	84	181	389
SR-299	W of I-5 / E of SR-273	91	197	424	79	169	365
SR-299	E of I-5 / W of Hawley Rd	105	227	489	93	199	430
SR-299	E of Hawley Rd/W of Old Oregon Tr.	71	153	329	62	134	289
SR-299	E of Old Oregon Tr.	59	127	274	54	117	252
Airport Rd	N of Rancho Rd	87	188	405	71	154	331
Airport Rd	S of Rancho Rd	81	175	377	65	140	302
S. Bonnyview Rd	west of I-5 Southbound ramps	80	172	371	71	152	328
S. Bonnyview Rd	east of I-5 Southbound ramps	60	129	277	52	112	241
S. Bonnyview Rd	west of Churn Creek Rd	55	118	254	48	103	223
Buenaventura Blvd	N of Placer St	36	77	167	33	72	155

Buenaventura Blvd	S of Placer St	38	82	177	33	72	155
California St	btw Shasta & Tehama St	13	29	62	13	27	59
Churn Creek Rd	S of SR-299 ramps	47	101	219	42	90	193
Churn Creek Rd	N of S Bonnyview	45	98	210	42	91	196
Churn Creek Rd	E of S Bonnyview	42	91	197	35	75	163
Cypress Ave	W of Hartnell Ave	71	153	329	60	129	278
Cypress Ave	E of Hartnell Ave	33	71	153	30	64	138
Cypress Ave	E of I-5 / W of Hilltop Dr	46	99	214	41	89	191
Cypress Ave	E of Hilltop Dr / W of Larkspur Ln	35	75	162	31	67	144
Hartnell Ave	W of Bechelli Ln	16	35	76	16	35	75
Hartnell Ave	E of Bechelli Ln	29	62	133	29	62	134
Hartnell Ave	E of Churn Creek Rd	36	78	167	35	76	164
Hartnell Ave	W of Shasta View Dr	31	67	145	29	62	133
Hartnell Ave	E of Shasta View Dr	23	49	106	20	43	93
Hawley Rd.	N of SR-299 ramps	29	63	137	26	57	122
Hilltop Ave	N of Cypress Ave	28	60	130	27	58	124
Old Oregon Trail	S of SR-299 ramps	49	106	228	40	86	186
Placer St	E of Buenaventura Blvd	46	99	214	41	88	189
Placer St	W of Buenaventura Blvd	44	94	203	44	94	202
Rancho Rd	W of Airport Rd	33	70	151	25	54	117
Rancho Rd	E of Airport Rd	9	20	43	5	11	25
Shasta View Dr	N of Rancho Rd	15	33	70	13	28	59
Tehama St	Btwn Oregon St & California St	10	21	45	9	19	41
Victor Ave	N of Rancho Rd	20	42	91	15	33	72

Source: GHD 2022

[1] Noise Contours for SR-299 used CALTRANS 2019 Data.
Distances are measured in feet from centerline.

Rail

Railroad activity in the Planning Area is limited primarily to the Union Pacific (UP) north/south mainline track which runs generally parallel to State Route 273 until just south of Lake Redding. One spur line south of North Bonnyview Road serves a lumber yard and production facility.

Approximately 16 trains per day travel through the City of Redding. According to the Federal Rail Administration (FRA) crossing data and the latest Amtrak schedule, there are 12 UP freight trains and one Amtrak train (Coast Starlight). There are eight at-grade crossings along the main line at and one at-grade crossing along the spur line. According to federal regulations, trains are required to blow their horns as they approach at-grade crossings as a safety measure to alert motorists and pedestrians. This can result in a significant noise impact for nearby residents and commercial/industrial land uses. A cluster of five at-grade crossings is in proximity in the downtown area which could result in significant noise.

Existing railroad noise levels were estimated, based on the current train traffic along the rail lines and spur within the City limits, using the Federal Transit Administration's (FTA's) CREATE rail noise model and the Federal Rail Administration's (FRA's) Grade Crossing Horn Model. The number of locomotives and rail cars was determined from the Amtrak website, UP rail line videos, and FRA accident data. The Ldn values were calculated based on these models, and the distances to 65 dBA CNEL contours on the UP mainline and the spur line are shown in Table N-4.

Future rail contours are expected to increase based on a projected 1.7 percent annual growth rate in freight traffic as per the 2018 California State Rail Plan on the UP mainline. There are no plans to increase the number of Amtrak Coast Starlight passenger trains.

Table N-4, Approximate Distances to Union Pacific Railroad Noise Contours

	Distance to 65 dBA CNEL Contour (feet)	
	Existing	**Future**
Union Pacific Main Line		
Wheel-Track Noise[1]	175	250
Horn Blowing at the At-Grade Crossings	387	444
Spur Line		
Wheel-Track Noise[1]	7	7
Horn Blowing at the At-Grade Crossings (Spur Line)[2]	71	71

[1] *These noise contours only apply to wheel track noise for trains traveling at distances greater than 0.25 mile from an at-grade crossing.*

[2] *Freight traffic along the spur line is not increased by the year 2045 since there is only one customer along this line.*

Airports

There are two airports within the Planning Area. The Redding Regional Airport (previously named the Redding Municipal Airport) is a commercial service primary airport. Existing noise impacts for the Airport were identified in the Redding Municipal Airport Master Plan Update, November 2015. Currently, the 65 dB CNEL noise contour does not encroach on existing residential areas. Figure N-3 shows existing noise contour for the Redding Regional Airport and Figure N-4 shows the projected noise contours, as shown in the Redding Municipal Airport Master Plan.

Benton Airpark is a basic utility airport used primarily by single-engine and small twin-engine airplanes. The Benton Airpark Master Plan, last updated in March 2005, indicates that there are no noise-sensitive land uses within the existing or forecast 65 CNEL contours. A short-term noise measurement conducted at the north end of the Airpark on Placer Street produced an Leq of approximately 67.4 dBA. Figure N-5 shows the existing contours and Figure N-6 shows the projected contours, as shown in the Benton Airpark Master Plan.

Construction Noise

The construction process can be noisy and affect people who live and work nearby. Construction is part of any city and while it can be considered temporary, it can also last for several years. Regardless of duration, construction noise impacts are real and must be considered along with the project. Simple things like setting reasonable construction times and ensuring that mufflers and noise suppression features of equipment are working can help limit the noise intrusion into the surrounding area. In general, construction that would result in 75 dBA or greater at the property line should consider methods of reducing noise impacts to the land uses near the construction.

Vibration

Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains,

construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., construction).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, heavy trucks, and traffic on rough roads. If a roadway is smooth, the ground vibration is usually rarely perceptible. However, large volumes of heavy vehicle traffic at fast speeds can also produce vibration. Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings.

The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Construction activities can generate enough ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants.

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB). The typical background vibration velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Table N-5 describes the general human response to different ground vibration velocity levels.

Table N-5, Human Response to Different Levels of Ground Noise and Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there is an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 micro inch per second and based on the root-mean-square (RMS) velocity amplitude.
Source: FTA 2018

Goals and Policies

Goal N-1: A city with appropriate noise and vibration levels that support a range of places from quiet neighborhoods to active and exciting entertainment districts.

N-1A - Encourage the use of site planning and building materials/design as primary methods of noise-attenuation.

N-1B - Discourage use of noise barriers and walls constructed exclusively for noise-attenuation purposes, where possible. In instances where noise barriers cannot be avoided, consider the use of site planning and building material/design features in conjunction with barriers to mitigate visual impacts and reduce the size of barriers.

N-1C - Allow development located in infill areas, near transit hubs, or along major roadways an exemption from exterior noise standards for outdoor activity areas, where appropriate.

N-1D - Consider establishing different standards for exterior noise consistent with place type to support businesses and concert venues.

N-1E - Require new development to generate operational and/or construction vibration levels no greater than 75 VdB at the property line of a sensitive receptor where feasible.

Goal N-2: Protect residents from exposure to excessive transportation-related noise.

N-2A - Generally, prevent development of new projects which contain noise-sensitive land uses in areas exposed to existing or projected levels of noise from transportation sources which exceed the levels specified in Table N-1, unless the project design includes effective mitigation measures to reduce exterior noise and noise levels in interior spaces to the levels specified in that table.

N-2B - New development should be required to mitigate noise created by transportation noise sources consistent with the levels specified in Table N-1 in outdoor activity areas.

N-2C - Consider the significance of noise level increases associated with roadway-improvement projects needed to accommodate buildout of the General Plan. Since it may be impractical to reduce increased traffic noise to levels in Table N-1, the following criteria may be used as a test of significance for roadway-improvement projects:

- Where existing daytime transportation noise levels are less than 60 dB Ldn in the outdoor activity areas of noise-sensitive uses, roadway improvement projects which do not increase the overall Ldn value to greater than 60 or result in an incremental increase of 5 dBA will not be considered significant.

- Where existing traffic noise levels range between 60 and <65 dB Ldn in the outdoor activity areas of noise-sensitive uses, a +3 dB Ldn increase in noise levels due to a roadway-improvement project will be considered significant.

- Where existing traffic noise levels are 65 dB Ldn or greater in the outdoor activity areas of noise-sensitive uses, a +1.5 dB Ldn increase in noise levels due to a roadway-improvement project will be considered significant.

N-2D - Require acoustical analysis for noise-sensitive land uses proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table N-1 or the performance standards of Table N-2 to determine mitigation for inclusion in the project design. Single-family dwellings on existing lots are excluded from this review.

N-2E - Strive to minimize motor vehicle noise impacts from streets and highways through proper route location and sensitive roadway design by employing the following strategies:

- Consider the impacts of truck routes, the effects of a variety of truck traffic, and future motor vehicle volumes on noise levels adjacent to master planned roadways when improvements to the circulation system are planned.

- Mitigate traffic volumes and reduce vehicle speed through residential neighborhoods where appropriate.

- Strive to engage and work with Caltrans in the early stages of highway improvements and design modifications to ensure that proper consideration is given to potential noise impacts on the City.

N-2F - New development in the vicinity of Redding Regional Airport and Benton Airpark should comply with the noise standards of the Comprehensive Land Use Plan for each facility as appropriate.

N-2G - Consider working with railroad officials to install mitigation features or quiet zones and ask railroad engineers to limit their use of air horns to reduce rail-related noise impacts on the community as resources allow.

N-2H - Establish standards for vibration during construction and operation that require vibration levels to be reduced below 85 VdB within 200 feet of an existing structure.

N-2I - Revise the Noise Ordinance to establish noise standards for construction noise that establish a maximum level of acceptable exterior noise for receptors within 500 feet of the construction activity.

Goal N-3: Protect the economic base of the City of Redding by preventing incompatible land uses from encroaching upon existing or planned noise-producing uses. Strive to prevent the introduction of new fixed noise sources in noise-sensitive areas.

N-3A - Development of noise-sensitive uses where the noise level due to non-transportation sources will exceed the noise-level standards of Table N-2 as measured immediately at the property

line of the new development should be prohibited unless adequate mitigation measures are utilized, noise easements are established, or other appropriate measures are taken.

N-3B - Strive to mitigate noise created by new proposed non-transportation sources consistent with the noise-level standards of Table N-2 as measured immediately at the property line of lands designated for noise-sensitive land uses.

N-3C - Require acoustical analysis of new non-residential land uses and the expansion of existing non-residential land uses if likely to produce noise levels exceeding the performance standards of Table N-2.

N-3D - Require that parking and loading areas for commercial and industrial land uses adjacent to noise-sensitive uses be buffered and shielded by walls, fences, and berms, unless an acoustical study demonstrates that operation of the parking and loading area(s) will comply with the City's noise standards.

N-3E - Parking structures serving commercial or industrial land uses should be designed to minimize the potential noise impacts both on site and on adjacent properties. Design measures may include the use of materials that mitigate sound transmission and the configuration of interior spaces to minimize sound amplification and transmission.

N-3F - Encourage existing major fixed noise sources throughout the City of Redding to voluntarily install additional noise-buffering or reduction mechanisms within their facilities to reduce noise impacts to the lowest level practicable.

N-3G - As appropriate, new noise-sensitive projects should be responsible for noise mitigations to lessen the impacts from adjacent and nearby industrial uses and urban activities when the following conditions exist:

- If, at the time of request for new residential or noise-sensitive land use development, the industrial uses complied with all the noise thresholds and/or noise mitigation measures based on anticipated noise sources and noise levels.

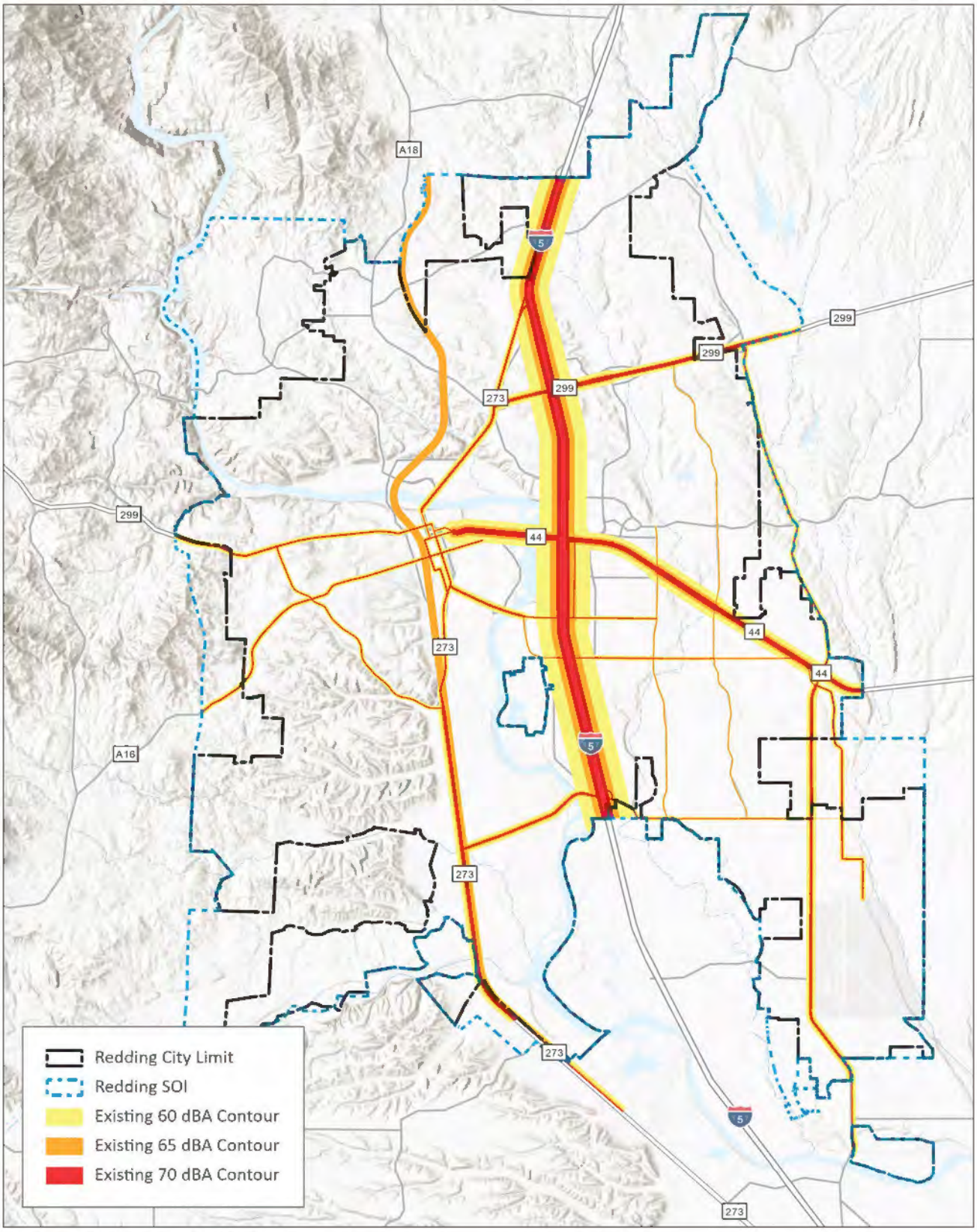
- If, at the time of request for a General Plan Amendment to establish new residential or noise-sensitive land use development, adjacent vacant land is designated for commercial or industrial development.

- The noise level measured at the noise-sensitive use property line exceeds the residential noise standards due to the cumulative effect of nearby non-residential noise sources and increased noise levels of urban activities (i.e., traffic, trains, etc.).

- The industrial use emitting the noise conforms with the land use classification of the General Plan, zoning district, and all conditions of City permits.

- The industrial use has not added additional noise-producing equipment or substantially changed its hours of operation from what has been approved by the City.

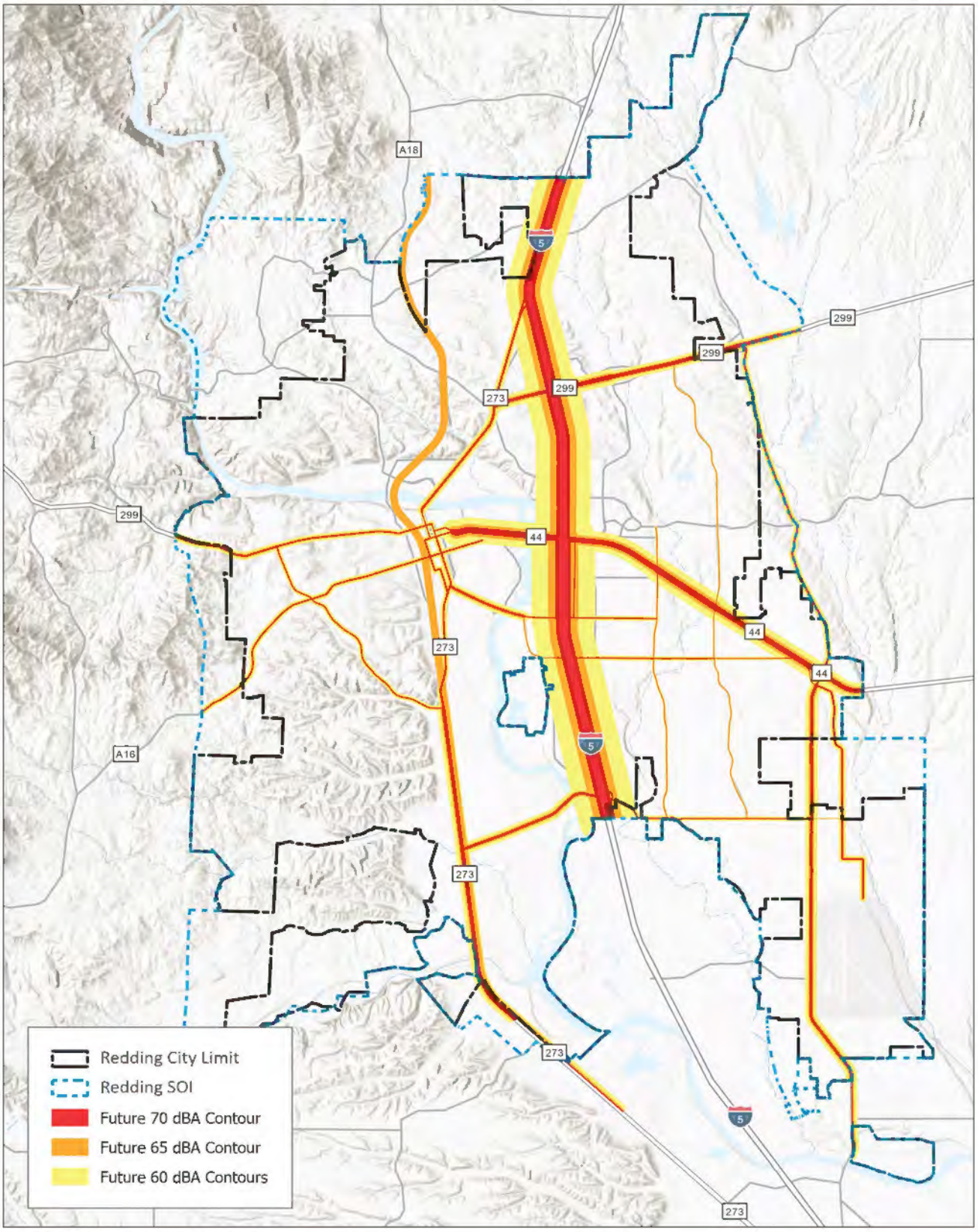
N-3H - Revise the Noise Ordinance to allow for increased noise levels in specific areas of the City that are hubs for outdoor activity, including the Downtown Core and Civic Auditorium/Rodeo Grounds/Turtle Bay Exploration Park area, by implementing different acceptable exterior noise standards for these areas. Consider modifying the nighttime noise standard period to start at 11 p.m. instead of 10 p.m. for activities in these areas.



Source: GHD 2022; City of Redding 2022

0 1.5
Scale (Miles)

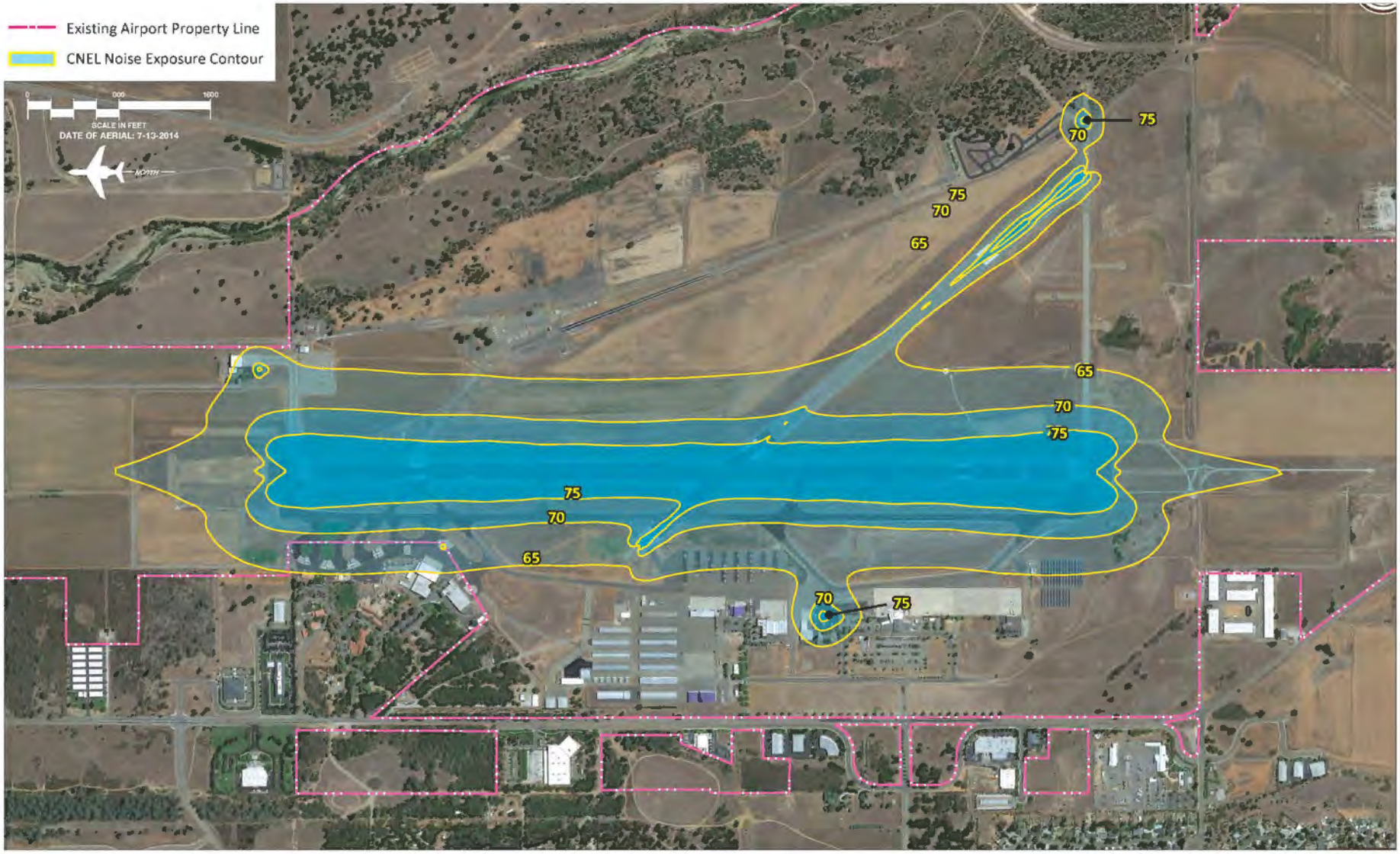
Figure N-1
Existing Traffic and Rail Noise Contours



Source: GHD 2022; City of Redding 2022

0 1.5
Scale (Miles)

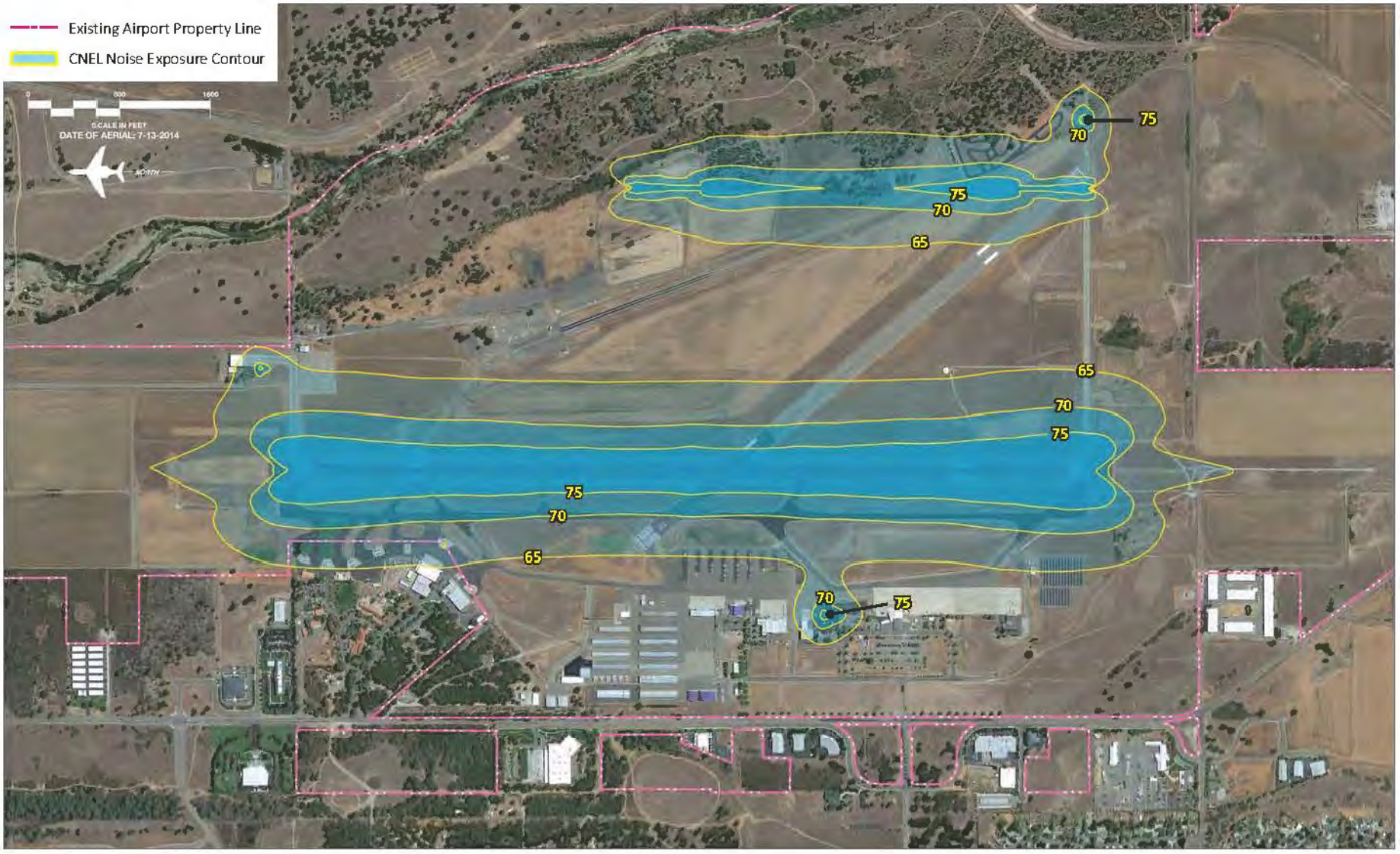
Figure N-2
Future Traffic and Rail Noise Contours



Source: Redding City Council Meeting, December 2015.

0 750
Scale (Feet)

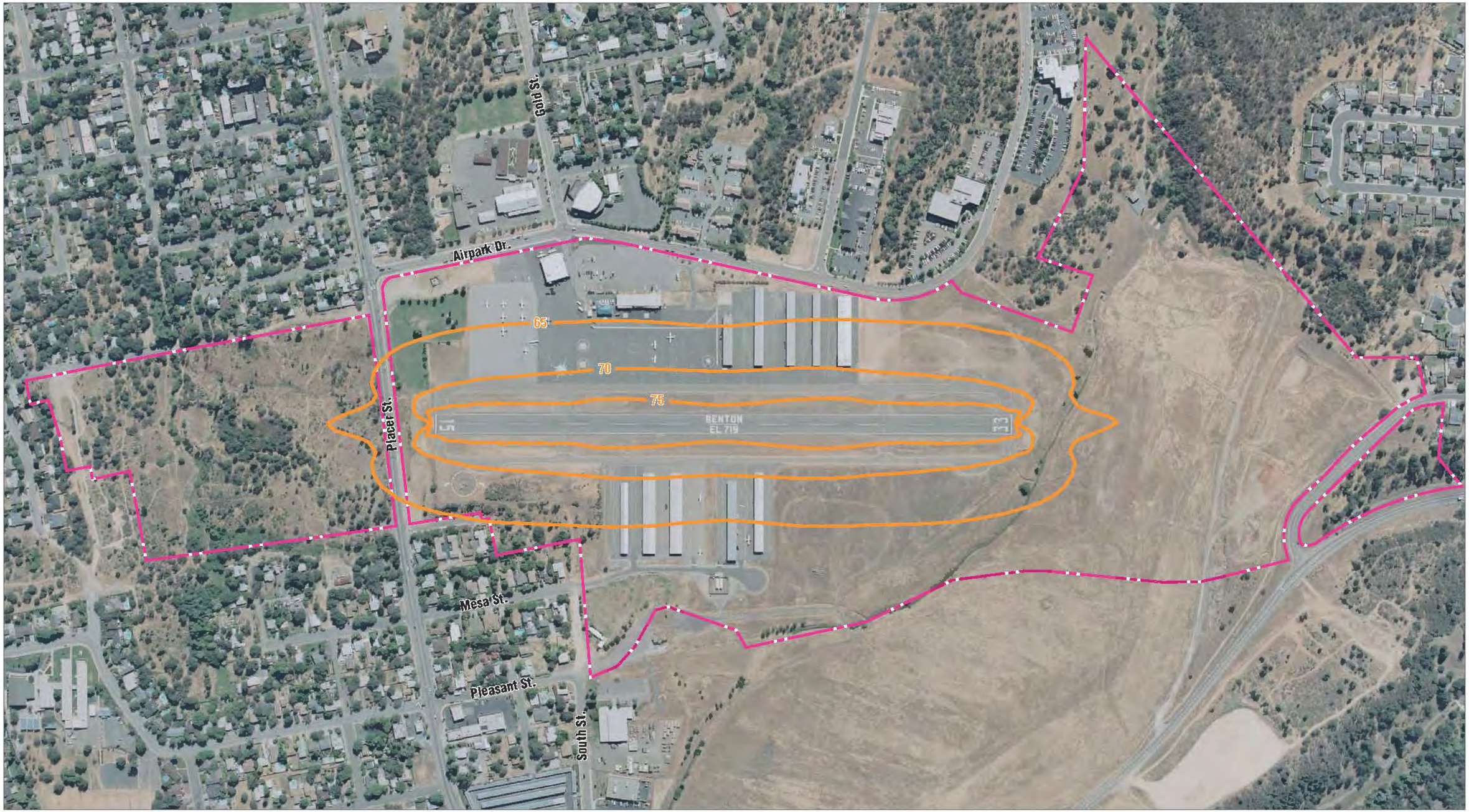
Figure N-3
Existing Redding Regional Airport Noise Contours



Source: Redding City Council Meeting, December 2015.

0 750
Scale (Feet)

Figure N-4
Future Redding Regional Airport Noise Contours

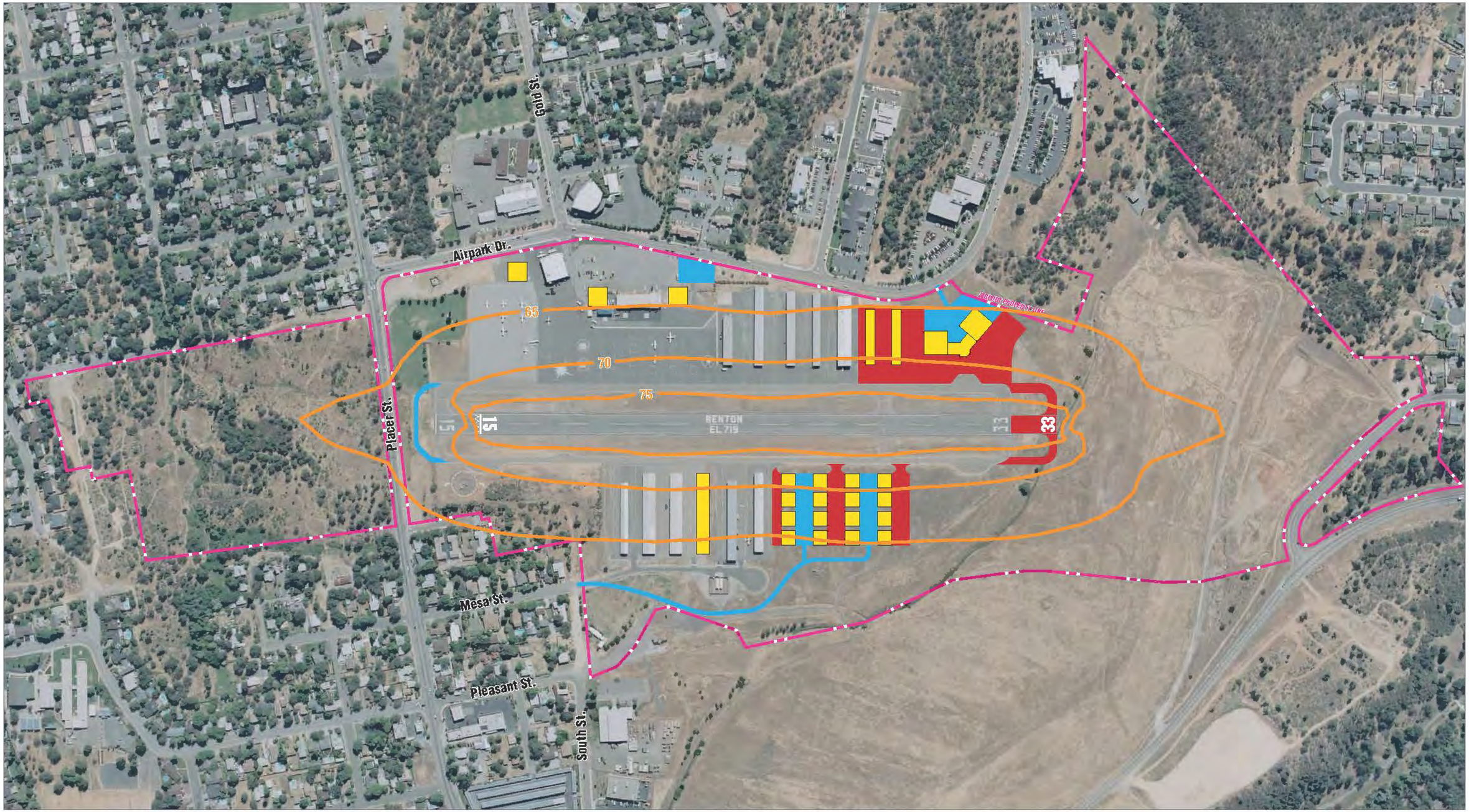


Source: Coffman Associates, Inc., 2005.

0 400
Scale (Feet)

Airport Property Line
CNEL Noise Contour

Figure N-5
Existing Benton Airpark Noise Contours



Source: Coffman Associates, Inc., 2005.

0 400
Scale (Feet)

Airport Property Line
CNEL Noise Contour

Figure N-6
Future Benton Airpark Noise Contours

Public Review Draft Public Facilities and Services Element

Introduction

Purpose and Context

Capital improvements are perhaps the most expensive and important investments the City of Redding (City) can make in itself. Therefore, it is essential that decision-makers and the public have access to information regarding anticipated facility needs and desired service level standards to ensure that necessary improvements are constructed at the appropriate times.

This element contains facility descriptions, service level standards, and goals and policies designed to support infill and smart growth strategies and to assist the City Council, advisory bodies and the City management team with decisions related to staffing and the construction/improvement of public facilities. The location, size, and timing of needed improvements are directly related to the land use patterns identified in the Community Development and Design Element and service level standards identified within the Public Facilities and Services Element.

Significant changes in land use types, locations, or intensities from those identified within the Community Development and Design Element can have a direct impact on public facility and services planning. When changes to the Community Development and Design Element and/or General Plan Diagram are considered, the impacts on planned public facilities should also be assessed and considered as part of the land use change decision-making process. The biggest challenge Redding faces in providing public facilities and services is developing a long-term funding strategy to pay for those items without creating an undue burden on itself, developers, City residents and businesses. The second half of this Element includes a discussion of funding options for identified facilities and services, and policy guidelines for long-term funding strategies.

Specific topics addressed in the Policy Document include:

- Law Enforcement
- Fire Protection
- Municipal Water Systems
- Sanitary Sewer Collection and Treatment
- Municipal Electric Service
- Solid Waste Collection and Disposal
- Storm Drain Facilities
- Corporation Yard

- Transportation Facilities
- Airport Facilities
- Recreational and Cultural Facilities
- Funding

Discussion of these topics and the issues related to providing public facilities and services as a whole has been grouped within the following sections:

- Establishing and Maintaining Service Levels
- Public Safety (Law Enforcement and Fire Protection)
- Utility Infrastructure and Services (Water, Sewer, Electric, Solid Waste, Stormwater, and Corporation Yard)
- Transportation Facilities (Streets, Bridges, Transit Facilities, and Airports)
- Recreational and Cultural Facilities (Parks, Large and Small Community Centers, Downtown Improvements, Convention Center, and Libraries)
- Funding

Authority

Pursuant to Section 65303 of the Government Code, a General Plan may include optional elements such as a Public Facilities Element, as long as the element relates to the physical development of the City. These elements have the same legal status and consistency requirements as mandatory elements.

Goals and Policies

Establishing and Maintaining Service Levels

The types and levels of public facilities and services that are provided in a community often affect not only an individual's thoughts about the quality of life that the community offers, but can have a direct impact on economic development efforts. Cities which maintain higher levels of services and facilities typically foster a good deal of civic pride among their residents, and leave a positive impression with those who visit. As Redding continues to evolve into a regional urban center, it is essential that existing service and facility standards be maintained and/or improved. Strategies should also be implemented which ensure that desired facilities and services are provided in the most efficient and cost-effective manner possible. The facility and service thresholds that follow are intended to guide planning and funding decisions, but not to be proscriptive in nature.

Goal PF1: Ensure that adequate public services and facilities are available to support development in an efficient and orderly manner.

PF1A - Require all new development, including major modifications to existing development, construct necessary on-site infrastructure to serve the project in accordance with the City standards.

PF1B - Consider requiring all new development, including major modifications to existing development, construct or provide a fair share contribution toward the construction of any off-site improvements as appropriate to offset project impacts and/or support the project, ensuring that established service levels are maintained.

PF1C - When reviewing applications for land use designation changes (i.e. zone change, General Plan Amendment, Specific Plan), the City may require that a thorough analysis of the impacts of the proposed changes on the City's infrastructure system be provided and that mitigation be required as appropriate.

PF1D - Require that the provision of streets, sewer, electric, water, drainage, and other needed infrastructure be coordinated in a logical manner between adjacent developments so as to reduce design, construction and maintenance costs.

PF1E - Work toward requiring that infrastructure be designed and constructed to meet ultimate capacity needs, pursuant to a master plan, so as to avoid the need for expensive retrofitting to the extent feasible.

PF1F - Utilize reimbursement agreements, as reasonably available and where appropriate, when upgraded or oversized facilities are installed by an individual developer and the cost of the facilities exceeds the development's proportional share of responsibility.

PF1G - Consider prioritizing development through incentives in infill priority areas with readily available infrastructure capacity and services.

PF1H - Encourage clustering of development to maximize the use and efficiency of available infrastructure and facilities.

PF1I - Update and adopt as necessary the City's Capital Improvement Plan (CIP) to prioritize funding for public works projects in accordance with the General Plan.

PF1J - Strive to ensure that the considerable public investment made in existing and new utility and street infrastructure is reliable and meets the existing and projected service demands.

Public Safety

Providing public safety services is an important function of any municipality. Safety services are typically divided into two broad categories: law enforcement and fire protection.

Law Enforcement

Law enforcement in the Planning Area is primarily provided by two agencies, the Redding Police Department and the Shasta County Sheriff's Department. The Redding Police Department provides law enforcement services within the City limits. The Shasta County Sheriff's Department is responsible for services within the unincorporated areas. However, the agencies have "Reciprocal Agreements of Empowerment," as required under California Penal Code Section 830.1, which provides enforcement rights for agencies to respond outside of their jurisdiction upon request.

The Redding Police Department operates primarily from the Redding City Hall campus and is organized into three major divisions: Administration, Field Operations and Investigations. In 2022 the City had 122 sworn officers, giving it a ratio of 1.29 officers per 1,000 residents. This figure is considered average and the minimum amount necessary to sustain current levels of service.

Other issues for consideration include the need for additional Field Operations stations as development within the Planning Area continues toward buildout. Co-location of additional police Field Operations facilities with existing locations of our community partners (Shasta County Sheriff) may provide opportunities to maximize facility investment and efficiencies. Other options for increasing the presence and accessibility of law enforcement personnel may include developing community-oriented substations in certain areas.

Goal PF2: Ensure a high level of police protection for the City's residents, businesses, and visitors.

PF2A - Strive to achieve and maintain adequate police services based on the following metrics:

- Response times to both priority (emergency) and non-priority calls for service.
- Demand for police services (based on workload) for emergency, non-emergency, and follow-up investigations.
- Overall call data and coverage needs based on geographic area.

PF2B - Work to provide police facilities (including patrol and other vehicles, necessary equipment, and support personnel) sufficient for law enforcement services as funding allows.

PF2C - Consider strategic locations for distribution of police beats to ensure optimum response times to all residents.

PF2D - Collaborate with local, state, and federal criminal justice agencies as appropriate to promote regional cooperation and to reduce crime.

PF2E - Collaborate with appropriate agencies as funding allows to incorporate technology and crime prevention techniques to ensure public and personal safety.

PF2F - Consider appropriate programs to expand opportunities for positive police and youth interaction.

PF2G - Collaborate with appropriate local, regional and federal agencies and mental health professionals to expand the scope, staffing for, and training of the Crisis Intervention Response Team (CIRT), to support residents in need. Pursue funding as appropriate.

Fire Protection and Emergency Medical Service

Fire protection and emergency medical service within the Planning Area is provided by five primary agencies: Redding Fire Department (RFD), California Department of Forestry and Fire Protection (CAL FIRE), the Shasta County Fire Department (SCFD), American Medical Response (AMR), and Dignity Health. The Redding Fire Department has the primary responsibility for providing fire protection and emergency services response within the City limits. A Mutual Threat Zone (MTZ) is in effect with CAL FIRE for vehicle accidents and structure fires within a one-mile fringe area surrounding the City. An automatic aid agreement with the Shasta County Fire Department is also in effect for structure fires. Under this agreement, the Redding Fire Department responds within a one-mile fringe area surrounding the City and to county islands, while the Shasta County Fire Department responds to a small geographic area on the east side of the City.

The Redding Fire Department has three main divisions: Administration, Operations, and Community Risk Reduction. It operates from eight stations and a Fire Department Headquarters at City Hall.

Response Time/ ISO Rating

The National Fire Protection Association (NFPA) and the Insurance Services Organization (ISO) have established the following criteria for response time related to fire protection and emergency medical services.

- *Time Temperature Standard:* a typical point source of ignition in a residential development that flashes over at some time between five and ten minutes after ignition, turning a typical "room and contents" fire into a structural fire of some magnitude.

- *Cardiac Arrest Survival Rate:* emergency medical service that provides basic life support to the victim of cardiac arrest within four minutes of the event, and advanced life support (paramedic service) within eight minutes or less.

- *The Golden Hour Standard:* historic benchmark during trauma events, applied to victims with significant critical traumatic injuries, requiring a patient to be transferred to an operating room within one hour of receiving a critical traumatic injury to increase survivability.

The 90th percentile of response for Redding Fire Department in 2022 was 9:56 minutes. Response time is measured from the point at which the agency receives notification from the Shasta Area Communications Agency (SHASCOM), which provides a consolidated dispatch service. The

Department notes annexation activity and population growth have resulted in the goal not being met in all eight districts. Average response times in 2022 ranged from a low of 6:07 minutes for the response area served by Station E1 to a high of 7:50 minutes for the response area served by Station E7.

The City currently maintains an Insurance Services Organization (ISO) rating of 2. To offset the potential for a reduction in ISO rating, additional fire stations and built-in fire protection systems will be necessary as the boundaries of the City expand.

Goal PF3: Ensure adequate fire protection and emergency medical response for residents and businesses in the community.

PF3A - Strive to maintain an ISO rating of 2 or better.

PF3B - Endeavor to establish and maintain the minimum desired response time for fire calls through adequate staffing, proper distribution of fire stations, equipment, and use of automatic aid agreements.

PF3C - As funding allows, construct new and/or relocate existing fire stations as needed to maintain service thresholds. In determining the location and type of firefighting equipment, the following factors should be considered:

- Density and intensity of land use areas;
- Water supply;
- Availability of automatic aid;
- Expanse of area to be protected;
- Prevalent fire risks; and
- Desired response times.

PF3D - Endeavor to implement the California Building Code and any local ordinances to protect life, control fire losses and fire protection costs through the use of automatic suppression systems. Adequate water supplies to construct fire suppression infrastructure as necessary should be available.

PF3E - Collaborate with appropriate agencies, as funding allows, to promote regional cooperative delivery of fire protection and incorporate technological advancements that enhance the City's ability to deliver efficient and effective fire rescue, fire protection, and emergency medical response.

PF3F - Strive to ensure, through development review, that projects adequately address on-site fire safety and protection and comply with applicable fire and building codes.

Utility Infrastructure and Services

Urban development requires a wide range of utility services including water, sewer, solid waste, electric, and stormwater drainage. The City has historically provided all of these services within its incorporated area except for independent water districts operated in various areas. Special districts and private utility companies provide these services within the unincorporated portions of the Redding Planning Area.

Municipal Water Systems

As of 2023, water service within the Planning Area is provided by five different entities: The City of Redding, Bella Vista Water District, Centerville Community Services District, Shasta Community Services District and the Clear Creek Community Services District. Coordination between the City and the various districts is generally provided by "annexation agreements" or inter-tie agreements which ensure that water systems and fire flows are constructed and maintained in accordance with City of Redding standards.

The City has three primary sources of water to supply its municipal water system:

- Surface water drawn from the Sacramento River. This source constitutes approximately 50 percent of the City's total supply.

- Surface water drawn from Whiskeytown Lake via the Spring Creek Conduit. This source constitutes approximately 20 percent of the City's total supply.

- Wells located in the Enterprise area provide approximately 28 percent of the City's total supply. Wells located in the Cascade system located in south central Redding provide approximately 2 percent of the City's total supply.

Options for meeting anticipated water demand associated with buildout of the General Plan include but are not limited to:

- Drilling additional wells.

- Conservation measures.

- Transfer agreements with other agencies.

- Treatment and utilization of reclaimed water.

- Implementation of Model Water Efficient Landscape Ordinance (MWELO) policies, which require new developments to install landscape with low water requirements.

Goal PF4: Maintain an adequate level of service in the City's water system to meet existing and future needs.

PF4A - Adhere to the following thresholds for water services and facilities to the extent feasible:

- Program planned expansion activities, when demand at an existing treatment plant reaches within 10 percent of plant capacity.
- Reservoir capacity should be maintained at 20 percent of maximum day demand
- Develop additional water supplies from wells at least two years prior to a projected water deficit.

PF4B - Work to develop and maintain a regular program for systematically replacing deteriorated or deficient water pipes. Seek funding as appropriate.

PF4C - Consider requiring water distribution systems to be interconnected ("looped") wherever feasible to facilitate the reliable delivery of water anywhere in the City.

PF4D - Consider being actively involved in surface water adjudication which could have a negative impact on the City's water rights and/or allocation.

PF4E - As reasonably necessary update the City's Water Master Plan to reflect changes to the General Plan, General Plan Diagram, water use pattern changes, supply, regulatory changes, or other circumstances.

PF4F - Strive to maintain, to the extent feasible, adequate water supply during emergencies.

PF4G - Consider implementation of water conservation strategies and programs and provide incentives to developments that adopt efficiency measures for water use. Continue to require the use of water-efficient landscaping including drought-tolerant and native plants in all new development.

PF4H - Collaborate with appropriate agencies to provide education and outreach campaigns on the importance of water conservation where feasible.

Sanitary Sewer Collection and Treatment

The City of Redding is the sole provider of sanitary sewer service within the Planning Area. However, current policy dictates that except under extraordinary circumstances, sewer service will not be extended unless properties are first annexed to the City. The Planning Area is divided into two separate service areas known as the Clear Creek Sewer Service Area and the Stillwater Sewer Service Area.

As of 2023, there were 45,178 Household Equivalents (HEs) within the system. This is 45 percent of the 99,951 HEs estimated for ultimate development of the service area. With proposed future

expansions, and correction of current inflow and infiltration difficulties, the two treatment facilities will be able to accommodate the forecasted growth.

Goal PF5: Maintain an adequate level of service in the City's sewage collection and treatment system to meet existing and future needs.

PF5A - Adhere to the following thresholds for sewer facilities to the extent feasible.

- Program planned expansion activities when a trunk line, interceptor line, or lift station reaches 75 percent of capacity.

- Program planned expansion activities when an existing wastewater treatment plant reaches 75 percent of capacity based on dry weather flows on an ongoing basis.

- Periodically review and update the Wastewater Utility Masterplan to guide long-range planning, design, and development of the wastewater system infrastructure.

PF5B - Monitor the operation of the sewage collection and treatment system to determine when upgrading or expansion of the system is necessary to serve development demands.

PF5C - Work to develop and implement a regular program for replacing and upgrading deteriorated and undersized sewer lines to reduce inflow and infiltration into the system.

PF5D - Dispose of wastewater biosolids through appropriate techniques consistent with standard industry practices, as permitted by the California Regional Water Quality Control Board and other approving/regulatory bodies.

PF5E - Consider investigating the feasibility of utilizing reclaimed water through environmentally sustainable practices. Work to develop a market and the ability to deliver reclaimed water for identified uses as appropriate.

Electric Services

As a California municipal corporation, the City of Redding's Electric Utility (REU) is a vertically-integrated utility that owns, operates, and maintains power generation facilities and transmission and distribution systems within the City limits. As a community-owned utility provider, Redding aims to ensure the needs of its customers are at the forefront when making critical policy decisions affecting the direction of the electric utility.

The City of Redding filed its first comprehensive Integrated Resource Plan (IRP) with the California Energy Commission (CEC) in 2019 as required by state regulation, and will update the plan at least every five years as required. The IRP is a guidance document outlining the utility's plan for meeting clean energy mandates and customer resource needs over the next 20 years, system upgrades needed to support load growth, and managing load impacts from increased electrification adoption, and which provides a framework for future resource procurements needed to support customer demands. The utility is required to engage stakeholders and ensure interested

parties are adequately represented in the outcomes of the IRP, allowing transparency into the utility's future resource plans.

As the state increases the focus on carbon reduction through building and transportation electrification, the City has begun implementing policies and procedures to aid in the adoption of infrastructure supporting electrification. The City will evaluate the need to expand its electric transmission and distribution systems based on transmission system assessments and distribution planning studies to reliably deliver energy to its customers.

REU completed registration and certification as a Transmission Operator in December 2022, and registration as a Transmission Owner in August 2021. These two new registered functions added to REU's existing registrations of Distribution Provider, Generator, Operator, Generator Owner, Transmission Planner, and Resource Planner on the North American Electric Reliability Corporation (NERC) Compliance Registry. Registration as a Transmission Operator led to an increase in REU's impact rating from low to medium, increased the number of NERC Reliability Standards applicable to REU, and increased REU's audit cycle from a six-year interval to every three years. REU is currently subject to compliance with 56 NERC Reliability Standards and 264 Requirements within those Standards for all of its registered functions.

Goal PF6: Meet the clean energy mandates while balancing reliability, safety, and affordability for existing and future electric utility customers.

PF6A - Periodically review and update, as necessary, the City's Electric Utility Strategic Plan to reflect industry restructuring developments and other changing conditions.

PF6B - Continue to budget capital expenditures for the repair and expansion of the electric system. Periodically update the Capital Improvement Plan to reflect changes in electric usage patterns, regulatory changes, changes in General Plan land use, and other circumstances, including emerging technologies.

PF6C - Consider requiring that main 12kV distribution lines be interconnected (looped) wherever feasible to reduce outage times while repairs are made, and provide reliable delivery of electricity within the City.

PF6D - Work to design the electric system to allow service to be provided to groups of 30 or more electric customers in the event of a single contingency failure of a City 115kV power line, substation transformer, or main 12kV distribution line (other than the failed section), to the extent feasible.

PF6E - Inspect overhead and underground electric facilities as necessary and continue establishing programs for systematically maintaining and replacing older electric facilities nearing end-of-life. Work to maximize opportunities for undergrounding existing overhead 12kV distribution lines.

PF6F - Work to design the electrical system to automatically isolate small areas local to the fault when in high fire danger zones where feasible.

PF6G - Update the City's Integrated Resource Plan as appropriate to ensure the utility's resource portfolio meets clean energy mandates and provides a high level of reliability through a diverse power supply mix.

PF6H - Assess and pursue upgrades, as appropriate, to the City's transmission and distribution system to accommodate increased customer demand.

Solid Waste Collection and Disposal

Solid waste generated in the Planning Area is disposed of at Shasta County's Richard W. Curry/West Central Sanitary Landfill. Under existing state permits, the landfill has sufficient capacity to accommodate the disposal of solid waste at least to the year 2030. Expansion of the facility also appears to be plausible at such time as increased capacity is warranted beyond the extent of existing permits.

Although Shasta County owns the Richard W. Curry Landfill, it has contracted with the City of Redding for the operation and management of the facility. This arrangement was formalized in 1988. The City provides collection services for residential, commercial and industrial refuse in the City limits of Redding by means of the Solid Waste Utility. Waste Management, Inc. provides refuse service to those portions of the Planning Area outside the City limits. The City takes over refuse collection and disposal responsibilities as areas are annexed.

Since 1995, the City has operated its own Solid Waste Transfer Station for the transfer of City-collected residential, commercial, and industrial refuse and the transfer of self-haul public refuse. The facility also has the capability of processing materials collected by curbside recycling programs, and contains a household hazardous waste drop-off/processing area and a composting area.

Recycling efforts within the City are constantly expanding to meet regulatory requirements and diversion mandates. Currently, there is a focus on the collection of residential, curbside recyclables and green waste, community education, and operation of a voluntary drop-off facility at the Solid Waste Transfer/Recycling Facility. Commercial recycling programs include the collection of corrugated cardboard, bar glass, office paper, newspaper, plastic containers, and the diversion of wood and metal wastes. The Solid Waste Utility is conducting audits of businesses' wastes to identify and divert potential recyclables from the waste stream.

The State's Department of Resources Recycling and Recovery aims to increase the diversion of organic materials away from landfills and towards the production of value-added products such as compost, fertilizers and biofuels. Reducing the amount of organic material sent to landfills is one of the strategies for reaching the statewide 75 percent recycling goal. State-mandated recycling programs include collection of food waste mixed with green waste from residential customers, source-separated food waste/organics from businesses, customer participation and waste diversion.

Goal PF7: Provide for efficient collection, recycling, or disposal of solid waste while maintaining an adequate waste disposal capacity.

PF7A - Adhere to the following threshold for solid waste collection and disposal facilities to the extent feasible:

- Pursue expansion of the City's solid waste transfer station when collection activities approach 85 percent of facility capacity or additional space is needed to accommodate desired separation and recycling activities.

PF7B - Continue to require solid waste collection service for residential, commercial and industrial uses within the incorporated area.

PF7C - Continue to implement the City's Source Reduction and Recycling Element and expand identified programs, when feasible, in order to meet or exceed state-mandated waste diversion goals. Provide outreach and education to various customer bases to encourage participation in recycling and diversion programs.

PF7D - Strive to achieve zero waste to landfills through reuse, reduce and recycle strategies and/or conversion technologies as appropriate. Collaborate with agencies to educate residents on the benefits of recycling and reducing solid waste.

PF7E - Continue to work cooperatively with Shasta County to address regional issues related to solid waste disposal and waste reduction.

PF7F - Strive to reduce the use of non-renewable, disposable, or toxic products in City operations.

PF7G - Collaborate with agencies to establish food recovery or donation services to reduce food waste in the City as appropriate. Explore recovery opportunities through composting or by disposition of organic waste at biofuel facilities.

PF7H - Work to develop and implement, as funding allows, the use of organic waste for renewable energy generation through gasification, anaerobic digestion or similar methods.

Stormwater Facilities

The Redding Planning Area contains fifteen hydrologic basins. All public storm drainage facilities within the City limits are operated and maintained by the City. Adjacent to incorporated cities, the responsibility resides with the County of Shasta or private property owners. As new areas are annexed, the City assumes responsibility for stormwater management of the public system.

Existing storm drainage facilities consist of conventional drop inlet/storm drainage pipeline collection and conveyance systems located throughout the City. These systems typically outfall into natural ravines or tributaries to the Sacramento River where the water is ultimately discharged. Recent studies have indicated that a regional detention/retention approach to stormwater management may be the most effective strategy to accomplish adequate flood protection within

the Planning Area; therefore, individual or development-based detention basins will continue to be used.

Goal PF8: Avoid increases in existing 100-year flood levels.

PF8A - Adhere to the following thresholds for stormwater drainage facilities to the extent feasible:

- Design drainage facilities to convey a 100-year storm.
- Until adequate stormwater facilities are in place, utilize a policy of "no net increase in runoff" for development projects in all drainage basins.

PF8B - Work toward constructing stormwater detention/retention basins at strategic locations to minimize current flooding risk. Select and pursue the acquisition of sites considered appropriate for such facilities as funding permits.

PF8C - Encourage Shasta County and the City of Shasta Lake to participate in appropriate City stormwater systems that may be available and/or participate in the development of a system of regional detention facilities that will complement the City's system.

PF8D - Encourage project designs that minimize drainage concentrations and coverage by impermeable surfaces.

PF8E - As resources allow, maintain all drainage facilities, including detention basins and both natural and manmade channels, to ensure that their full carrying capacity is not impaired.

PF8F - Encourage the use of green infrastructure design and Low Impact Development techniques for stormwater facilities.

Corporation Yard

An often-overlooked component of providing a variety of services is the space needed to accommodate and service the vehicles, equipment, and supplies that are utilized by various City departments. The City's Corporation Yard currently houses the following types of operations:

- Public Works Field Operations (water, wastewater, streets, electricity)
- Parks Maintenance.
- Fleet Maintenance.
- Building Maintenance.

As the City continues to grow, the City's Corporation Yard should be adequately sized and configured to accommodate the storage, repair, and operational needs of the City.

Goal PF9: Ensure that facilities are provided to accommodate the City's storage, repair, and operational needs.

PF9A - Consider preparing a strategic improvement plan for the Corporation Yard to address long-term needs, including, but not limited to:

- Ultimate land area;
- Types of buildings and structures;
- Indoor and outdoor material storage;
- Screening;
- Office space; and
- Access and storage for vehicles and equipment.

Transportation Facilities

Refer to the Transportation Element for recommendations on Streets and Transit Facilities.

Bridges and Overcrossings

The City of Redding is fortunate to have natural features such as the Sacramento River and its tributaries traverse through its Planning Area. However, these features, as well as manmade features such as Interstate 5 and the Union Pacific Railroad, can also create barriers to vehicular and pedestrian travel. As Redding develops, it will need to consider and pursue improvements to existing and future bridge/overcrossing facilities if desired access to growth areas and roadway Level of Service standards are to be achieved and maintained.

Goal PF10: Ensure that bridge and overcrossing improvements which are essential to the City's Circulation Plan are provided.

PF10A - Aim to establish the following thresholds for bridges and overcrossings:

- Consider pursuing funding for bridge and overcrossing improvements ten years in advance of projected need based on the bridge sufficiency rating and/or if the bridge does not meet the standard Complete Streets requirements for the corridor.
- Work to review the established plan lines and begin any necessary right-of-way acquisition ten years in advance of the anticipated construction of new bridge and overcrossing facilities identified within the City's Circulation Plan as appropriate.

PF10B - Consider identifying appropriate location(s) for grade separations at railroad crossings and pursue their construction.

PF10C - Consider the location of future bridge and overcrossing improvements when development is proposed near those areas to ensure that opportunities to construct the facilities will not be precluded in the future.

Airport Facilities

There are two airports located within the Planning Area. The Redding Regional Airport (Airport), located in the southeast portion of the City, is designated as a certified airport for commercial airline operations and general aviation. Benton Airpark, located close to Downtown Redding at Placer Street and Airpark Drive, provides commercial reliever support to the Redding Regional Airport. The availability of convenient air transportation for residents and businesses is an asset to the community and can be used as a marketing tool in the City's economic development efforts.

The Airport Master Plan outlines future improvements planned for the Redding Regional Airport and Benton Airpark. In addition to a listing of proposed improvement projects, the Master Plan identifies estimated costs and general time frames (short-term, long-term, etc.) for installation of the improvements.

Goal PF11: Provide convenient airport services for the community with minimal adverse impacts.

PF11A - Update and implement as necessary and appropriate the Airport Master Plan and Comprehensive Land Use Plans adopted for the Redding Regional Airport and Benton Airpark.

PF11B - Continue to expand aeronautical services and the upgrade of passenger aviation facilities in and around the Airport as funding becomes available.

PF11C - Identify and pursue the acquisition of additional land area as determined to be necessary for the protection of existing airport operations or anticipated future expansion of airport facilities and services, as funding allows.

PF11D - Strive to provide efficient ground connections from the Airport to Downtown and other vital economic areas.

PF11E - Develop strategies to generate ongoing funding for general airport operations and a reserve which can be used to meet the matching fund requirements of grant funding sources as appropriate.

Recreational and Cultural Facilities

Recreation and cultural facilities consist of essential features such as public parks, special use facilities, and venues that contribute to the overall quality of life within a community. The City of Redding and other public/private groups and individuals have made a commitment to providing

and enhancing the quality and availability of these facilities to meet the needs of the City's residents and attract visitors to the region.

Park Systems and Community Parks

Refer to the Parks, Trails, and Recreation Element for recommendations on Park Systems and Community Parks.

Libraries

In 2006, governance and management of the Shasta Public Library was transferred to the City of Redding from Shasta County (County). The transition, accompanied by a thirty-year funding agreement between Shasta County, City of Anderson and City of Redding, has yielded the stability and growth desired. The new Redding Library was opened in 2007, and the Burney Library was relocated to a new location on Main Street in 2020.

Libraries are community hubs. They connect people to information and connect people to people. As great democratic institutions, they serve people of every age, income level, location, ethnicity, and physical ability, and provide the full range of information resources needed to live, learn, govern, and work.

Goal PF12: Recognize the library system as a significant contributor to the quality of life through diverse and current library collections, technologically-improved services, and welcoming environments.

PF12A - Endeavor to maintain a library system that adapts to technological changes, enhances library services, expands access to digital information and the internet, and meets community and library system needs.

Goal PF13: Create environments that encourage opportunities for self-learning, and cultural and civic engagement.

PF13A - Continue to provide a variety of library programs serving library users of all age groups.

PF13B - Continue to partner with local school districts, businesses, community members, and the County in the provision of high-quality library services as appropriate.

PF13C - Strive to utilize libraries as multi-functional facilities, resiliency centers, cultural centers, gathering spaces, and venues for programs, including arts-related events.

Funding

One of the most important aspects of facilities and services planning is to determine the total anticipated costs of the desired facilities and services, and identify appropriate funding sources for initial construction and long-term maintenance. The following sections describe existing funding sources utilized by the City and general guidelines for future facility and services financing.

Overview of Current Funding Mechanisms

Redding finances many of its services and the construction of some public facilities by various methods of cash payment. One of the most well-known sources of cash funding is the City's General Fund. General Fund revenues come from property taxes, sales and use taxes, intergovernmental revenues, fees, use of property and money, and other smaller sources. The bulk of General Fund expenditures are devoted to public safety, which includes police, fire and animal control. The remaining expenditures are divided among general government, Public Works, Development Services, and Parks and Recreation. Most General Fund expenditures are for employee salaries, vehicles, equipment, and general operations and some capital improvements. The General Fund also contributes to the costs associated with various public facilities, particularly maintenance.

Enterprise Funds are accounts that are self-supporting through user fees. These fees are used for improvements and to pay debt service on borrowed funds. There are also one-time "hook-up" fees for water and sewer service. The City has established Enterprise Funds to pay for operations and capital development costs associated with electric utilities, water utilities, wastewater utilities, solid waste operations and the storm drainage system. Enterprise Funds have also been created for Redding's airport system, the Redding Area Bus Authority and the Redding Civic Auditorium.

Special Revenue Funds are established to account for the proceeds of legally mandated programs or resources restricted to a special purpose. Sources for these funds include parking-related revenues, Community Development Block Grant money, development impact fees, housing subsidies and transfers from special purpose state funds. The City currently maintains six Special Funds. These include: Parking, Street Maintenance, Community Development, Special Development, Housing, and General.

Although cash funds are used to pay for some projects, many of the City's capital improvements are financed with borrowed money using three basic methods.

- Sale of General Obligation Bonds.
- Sale of Revenue Bonds.
- Formation of various funding districts.

Private developers also make significant contributions toward the construction of public facilities. When developers construct their projects, they are required to install street improvements along the frontage of the property and pay fees to help finance citywide facility improvements. Developers dedicate rights-of-way for public streets and utilities, and sometimes land for parks and schools. They provide street, sidewalk, utility and landscaping improvements. They also pay transportation, water, sewer and school fees to help finance facility expansions. Additionally, residential developers pay a fee to help finance land acquisitions and construction of public park

facilities. The extent of public facility contributions by developers is generally determined by set guidelines and ordinances. On occasion, certain contributions are arrived at through detailed negotiations on a case-by-case basis.

All major publicly funded facility improvements are programmed and allocated funds through the City's Capital Improvement Program (CIP). The size of the CIP fluctuates from year to year, depending on the improvements needed and the amount of money available to pay for projects. Very little General Fund money is used for CIP projects.

The City faces a variety of limitations that govern the funding of capital projects. The State of California places constitutional limits on the City concerning enhancement of revenues. Proposition 13, a constitutional amendment passed in 1978, limits the increase of property tax to 2 percent per year, although property may be reassessed when sold. More recently, Proposition 218 and Proposition 26 place limitations on special assessments and fees. Because of these constraints, the City needs to continually look for innovative ways to fund facilities and services. In order to meet these challenges, the development of additional public/private partnerships is likely to be explored, as well as the privatization of some services.

Goal PF14: Achieve and maintain adopted facility and service standards through the use of equitable funding methods and innovative strategies.

PF14A - Through nexus studies, determine the demand for new public facilities created by new development as compared to the demand for new facilities created by the community as a whole. Based on the results, determine the "fair share" of the financial contributions that is appropriate for both the community at large and new development.

PF14B - Update as necessary the ordinance for Development Impact Fees that obligates new development to pay its "fair share" of the cost to build needed public facility improvements.

PF14C - Where appropriate, distribute the responsibility to pay for new public facilities between existing and future development based on their respective demands on the system.

PF14D - Strive to identify and pursue alternative funding sources that can be used for capital improvement project construction, staffing and ongoing maintenance of public improvements. Endeavor to expand the search for grant funding.

PF14E - As appropriate, request the preparation of a fiscal impact analysis for all specific plans or significant general plan land use amendments and annexations. The analysis will examine the fiscal impacts on the City and other service providers that result from large scale development. The fiscal analysis shall project a positive fiscal impact for new development or include mechanisms to fund projected fiscal deficits. Exceptions may be made when new development generates significant public benefits (e.g., low-income housing, primary-wage-earner employment) and when alternative sources of funding can be obtained to offset foregone revenues.

Public Review Draft Parks, Trails, and Recreation Element

Introduction

Purpose and Context

The purpose of this Element is to identify and document present public park and recreation facilities within the community; compare such facilities with current and long-term needs; establish goals towards meeting the community's needs; put forth policy direction to achieve the community's recreation goals; and provide policy guidance to develop and implement the citywide *Parks, Recreation and Open Space Master Plan*.

Specific topics addressed within this Element include:

- Community Wellbeing
- Natural and Scenic Open Space Areas
- Regional River Parkway Plan
- Archaeological and Historical Resources (as they relate to park and recreation sites)
- Park Planning and Development
- Compatibility with Adjacent Land Uses
- Facility Funding and Management
- Citywide Trail System
- Regional Trail System
- Safety and Sustainability

The Element is intended to be used as a coordinating document by all levels of government involved in planning and community development, and the management and development of park, trail, open space, and recreational resources within the Redding Planning Area.

The Element should be consulted by property owners, developers, and public officials before preparing land-use applications for consideration by the City. At such times when community issues that have an effect on parks, recreation, or open space are discussed, it is appropriate to refer to the text and map exhibits of this Element.

Authority

Government Code Section 65560(b)(3) specifies that open space for outdoor recreation be addressed in a community's General Plan. Although many jurisdictions choose to discuss this topic within their Open Space Element, Government Code Section 65303 states that the General Plan may include other elements, such as a Recreation Element, as long as it relates to the physical development of the City. Because of the importance of recreation to the Redding community, the City has had an adopted separate "Parks, Trails, and Recreation Element" since 1985.

Goals and Policies

Community Wellbeing

Parks and recreational facilities play a vital and important role in establishing and maintaining the quality of life in a community and promoting the health and wellbeing of all age groups; and, in turn, contribute to the economic and environmental resources of the City. Parks, trails, and recreational programs should strive to meet the needs of a growing and diverse population to help residents develop values, life skills, and a healthier lifestyle. They can promote opportunities for citizens to be volunteers and advocates, while also enhancing communication and creating a sense of ownership in the community.

The challenge to recreation and park providers is to balance the community's desire for a full spectrum of park facilities and recreation programs with the availability of resources.

It is recognized that new development can be beneficial to the City. However, it should be balanced with the realization that growth without "quality of life" as a critical component fails to meet the full needs of a thriving community. Redding residents and community groups have spawned several unique partnerships to enhance park and recreation facilities such as the Sacramento River Trail, Turtle Bay Exploration Park, the Sundial Bridge, and the Caldwell Jr. Bike Park. Existing public partnerships also emphasize the co-location of parks with schools and utilization of joint use and maintenance agreements to maximize efficiencies, allowing the City to direct a larger portion of its resources towards the community's broader park and recreational needs. Implementation of both these partnerships and traditional city-led recreational development is necessary in order to provide and maintain a full range of desired park and facility types.

As population and the density of development within the Planning Area continue to increase, so too will the importance of parks, and other recreational and open-space areas for the community. At the same time, the availability of suitable parklands will decrease as potential sites are developed. Therefore, it is advised that suitable sites for public parks, trails, and other recreational features be identified and acquired in advance of their actual need–sometimes even before funding sources for facility development have been established–to ensure that adequate lands will be available to meet long-term needs.

This section includes goals and policies designed to address the primary recreation and park development issues. The goals, policies, and exhibits contained in this Element will serve as the framework for meeting the City's ongoing park and recreation needs.

Goal R1: Foster awareness that recreational programs and park facilities improve the community wellbeing. Provide a mix of recreation programs and park facilities that focus on all residents at all stages of life.

R1A - Continue to monitor community demographics and socio-economic factors with intent to ensure that recreation programs and park facilities meet the most pressing needs.

R1B - Explore the creation of recreation-based programs and park facilities–in conjunction with law enforcement, schools, local colleges, local businesses and community groups that address social concerns for youth–that will lead to healthy outcomes and improved community wellbeing.

R1C – Program recreation activities jointly with schools, local colleges, and community partners, where appropriate.

R1D – Continue to design parks, trails and recreational facilities to support activity throughout the year, and to provide and support cultural and recreational events and activities to engage residents.

R1E – Continue to educate and work with local boards, commissions and other influencers on the mental and physical wellness benefits of indoor and outdoor leisure, and promote physical activity throughout the community.

R1F – Continue to educate and work with local boards, commissions and other influencers to promote the recreational use-value of the parks and trails infrastructure and the benefits of bolstering the tourism economy.

Natural and Scenic Open Space Areas

The City of Redding has abundance of natural, scenic, and open-space features throughout the community that are some of its most valued assets. The most important of these is the Sacramento River, which essentially bisects the City and is viewed as a focal point of the community. Development of a Regional River Parkway has long been envisioned as a multi-jurisdictional project that would maximize and enhance the recreational and economic potential of the river. Therefore, efforts to plan and design the City's open space system should focus on maximizing and protecting this resource.

Goal R2: Recognize the Sacramento River as the backbone of the City's park system.

R2A – Seek to identify and obtain funding to prepare and implement a Regional River Parkway Plan for areas along the Sacramento River between Shasta Dam and the City of Anderson to address:

- Resource protection.
- Habitat assessment and management.
- Recreational opportunities.

- Location of existing and proposed facilities.
- Recommendations for speed limits and use restrictions on the river, where warranted.
- Acquisition of lands.
- Management and operations.
- Restoration activities.

R2B – Preserve and restore native trees and vegetation along the Sacramento River by incorporating these features into park design, where feasible.

R2C – Continue to plan and implement a public trail network along the Sacramento River that provides active and passive recreation, amenities, public access, and wayfinding to ensure connectivity to other destinations.

R2D – Protect and enhance access for public safety, fire and rescue activities to the entire riverfront and creek corridors while minimizing and mitigating impacts, to the extent feasible.

R2E - Encourage community stewardship and volunteerism to protect, preserve, rehabilitate and highlight the Sacramento River corridor and its natural, historical, pre-historical and cultural resources.

R2F - Plan, encourage and support projects and efforts to preserve and restore native habitat along the Sacramento River and creek corridors in the Planning Area by preserving native plants and by removing invasive non-native plants. Fund and staff regularly scheduled preventative maintenance as budget allows.

R2G - On a project-by-project basis, strive to protect, enhance, and restore habitat for special-status plants and animal species.

R2H - Collaborate with local businesses and independent ventures that provide and support a diverse range of recreational services and amenities along the Sacramento River. Evaluate and encourage opportunities for updated and innovative recreational infrastructure through public/private partnerships.

Goal R3: Preserve and encourage the judicious development of those natural resource areas which have unique recreation potential.

R3A - Establish park sites, trails, public open-space areas and other recreational lands along the river and creek corridors through public and private land acquisitions, land dedications, conservation easements, and similar mechanisms as opportunities allow.

R3B – As funding allows, remove invasive non-native plants and promote the use of a variety of native and/or drought-resistant plants, particularly oak trees, where appropriate, in park and natural open-space areas.

Archaeological and Historic Resources

Redding is rich in both archaeological and historic resources. There is a high probability that archaeological, historic, or cultural resources will be encountered within sites proposed for park and recreation use in proximity to the Sacramento River, creeks, and abutting woodlands. Archeological expert advice and indigenous group consultation are required under these circumstances to research and evaluate the next steps in identifying and preserving potentially sensitive sites/resources. Depending on the type of resource involved, certain features can, upon expert consultation, be incorporated into facility design. (*Refer to Natural Resources and Constraints Element for additional information*)

Goal R4: Preserve and enhance Redding's historic and cultural heritage in the process of park development.

R4A – Protect, enhance, and integrate, where possible, historically- and culturally-significant structures and resources located in parks and open-space areas, in accordance with the Historic/Architectural Preservation Ordinance.

R4B – Ensure that park development and parkland acquisition proposals consider potential impacts to historical or archaeological resources, and eliminate or minimize those impacts to the fullest extent possible.

R4C - Promote and encourage consultation and partnership with Wintu tribes, historical research groups, and others for the protection, improvement, and preservation of archaeological, paleontological, historical and cultural resources in parks.

R4D – Preserve, educate, and enhance art and culture, representative of the community or neighborhood in park design, where feasible.

Park Planning and Development

The adoption of the 2000-2020 General Plan provided policy guidance to develop and implement the citywide *Parks, Recreation and Open Space Master Plan.* That master plan, adopted in 2004, is known as the *Parks, Trails, and Open Space Master Plan* (Parks Master Plan.) An update to the Parks Master Plan will coincide with this General Plan, and its data and policies are reflected herein. Generalized descriptions for various types of recreational lands are referenced below. The Parks Master Plan includes complete descriptions of each facility type. The type and location of existing public park facilities and/or private facilities accessible to the general public are shown in Appendix "A".

Neighborhood Parks

- Fully developed parks which typically contain a variety of active recreational facilities such as playgrounds, picnic areas, basketball or tennis courts, and open play areas.
- Intended primarily for informal recreational activities and divided into two categories:
    - *Small Neighborhood Parks*
        - Typically, .25 to 5 acres in size.
        - Provide recreational opportunities, and visual and aesthetic landscape relief in the otherwise urbanized setting.
    - *Large Neighborhood Parks*
        - Typically, 5 to 15 acres in size.
        - Serve as the recreational and social focus area of a neighborhood.
        - Size allows for more diverse recreational experience.
        - Provide the opportunity to take advantage of natural features that may be present.

School-Parks Joint Use Facilities

- Include all public park areas that are located adjacent to or co-located with school.
- City may not own any of the facilities, but operates programs from school-owned buildings and property.
- Help bridge the gap for necessary neighborhood parks in areas where no parkland is available.
- Joint-use agreements are typically utilized to address public use of school facilities and maintenance.

Regional Parks

- Generally, 50 acres or more in size.
- Accommodate a broader range of uses and activities designed to attract users from both within and outside the City.
- Provide a wide variety of specialized facilities and activities.

- Located and designed to preserve unique landscapes and open spaces while serving recreational needs.

Community Parks

- Typically range from 15 acres to 50 acres.

- Contain a variety of organized group recreational facilities such as sports fields, picnic areas, basketball or tennis courts and playgrounds.

- Allow for group activities that may not be desirable or feasible in smaller neighborhood parks, including tournament-play ball fields, field houses, informal events and recreation and/or community centers.

Special Purpose Facilities

- Developed or used for a focused or highly specialized purpose.

- Examples range from cultural amenities (performing arts facilities, amphitheaters, arboretums, senior centers) to recreation sites (boat ramps, campgrounds, sports stadiums and complexes, aquatic centers, public golf courses, skateboard parks, etc.).

Private Neighborhood Parks

- Developed, owned and maintained by the private sector for the exclusive use of residents within the neighborhood.

- Generally, not available to the public and are not considered in the City's overall level of service goal of ten acres per 1,000 population.

- Typically constructed as an integral part of and simultaneously with residential development projects.

- The size of these parks varies; however, they are typically smaller than public neighborhood parks.

Natural Area Parks

- Place a higher emphasis on natural resource characteristics rather than high-impact recreational activities.

- Typically located to provide access to special views, conservation areas, lakes, streams and/or the Sacramento River.

Trails

- Linear facilities that can be single- or multipurpose in nature.
- Surfacing materials, widths, and designs vary depending on the intended function and/or anticipated user group.

Open-Space

- Areas usually maintained in a relatively natural condition and provide for extremely low-impact, passive recreation uses.
- Often contain steep slopes, floodplains, scenic viewsheds, or sensitive habitats.
- Given the natural condition of these areas, open space is not considered as "parkland" under Goal R5.

Beyond acquisition of adequate parkland, the City should ensure that the needs of all segments of the population are met, creating an opportunity for public input/participation in park and recreation planning, in addition to working toward full development of the land that is acquired. Therefore, policies have been incorporated supporting construction of new or undeveloped park sites. In order to ensure that an adequate amount of improved parkland is provided as growth and development occurs, many jurisdictions adopt specific standards which identify the community's desired level of improved parkland acreage per 1,000 population. The City strives to achieve a level of service standard of a minimum of ten acres of improved parkland per 1,000 population while maintaining and recognizing the importance of providing a broad range of facility types, with the goal that every resident in the City lives within a one-half mile radius of the nearest park, trail, or other recreational amenity. This standard includes developed and undeveloped parks that are owned and maintained by the City and school facilities with joint-use agreements such as:

- Small and Large Neighborhood Parks;
- Community and Regional Parks;
- Trails outside of parks;
- Special Purpose Facilities;
- Parkland adjacent to schools in instances where the land is publicly owned; and
- Parkland and play areas associated with school-owned recreational facilities, where long-term, joint-use agreements have been established.

Not included are:

- School Facilities where no long-term, joint-use agreements are in effect;

- Unimproved Open Space;
- Private Parks.

Figure 1 identifies general locations where future parks will be needed based on proposed development densities depicted on the General Plan Diagram. The locations illustrated should not be considered site-specific. The purpose of the figure is to identify the types of public park facilities that will be needed, based on existing needs and the holding capacity of the General Plan, and their approximate distribution.

Goal R5: Strive to provide a minimum of ten acres of improved parkland per 1,000 population and a broad range of facility types, with the goal that every resident lives within a one-half mile walkable or bikeable radius of the nearest park, trail, or recreational amenity.

R5A - Continue to implement and update as appropriate the *Parks, Trails, and Open Space Master Plan* (Parks Master Plan).

R5C – Plan to locate at least one Large Community Park in each quadrant of the City as indicated generally on the General Plan Diagram.

R5D –Accept park land dedications only when such dedications meet the goals and policies of the *Parks, Trails, and Open Space Master Plan*.

R5E – As opportunities and funding are available, acquire Large Neighborhood and Community Park sites in advance of their actual need and explore innovative methods for acquiring parks and land for recreational activities and amenities.

R5F – Work to disperse a variety of park facilities and amenities throughout the community, with the goal that every resident lives within a one-half mile walkable or bikeable radius of the nearest park, trail, or recreational amenity.

R5G - Locate parks adjacent to school facilities, whenever possible, to maximize recreational opportunities and joint use of facilities.

R5H – Work to establish agreements with local schools which will allow other agencies, groups, or members of the public to use special facilities and grounds (such as multipurpose rooms, gymnasiums, sports fields, basketball courts, etc.) during times when school is not in session, to accommodate additional community and recreational activities. Where such agreements are in effect, the facilities may be included in the City's parkland inventory.

R5I – Work to increase the acreage and quality of developed park facilities by placing a priority on:

- Building out existing Large Neighborhood and/or Community Parks that are

underdeveloped.

- Encouraging developers of large residential projects to dedicate land beyond minimum code requirements.

- Encouraging community-based park and trail improvements such as gifts or community-improvement projects.

- Coordinating improvements and programs with nonprofit organizations, schools, other agencies, and private-sector providers to avoid duplication of facilities and programs.

R5J - Encourage co-location of public and private parks with flood-control facilities, such as stormwater detention basins, where appropriate, to maximize the efficient use of land.

R5K - Pursue the acquisition of surplus federal, state, and local lands and grants, to meet present and future park and recreation needs.

R5L - Work with citizens' groups and other agencies to prioritize development of, and identify appropriate locations for, Special Purpose Facilities. Facilities to be considered may include sports field complexes, indoor and outdoor recreation facilities, or an indoor or outdoor aquatics complex.

R5M - New parks and recreational facilities should be designed for residents of all abilities and at all stages of life.

Goal R6: Ensure that new development contributes to the park, recreation, and improved open-space needs of the City.

R6A - Adhere to the standards of the *Parks, Trails, and Open Space Master Plan* to ensure that new residential projects provide appropriate levels of improved open-space and/or recreational amenities.

R6B - Continue to require developers of residential property to contribute park sites or pay in-lieu fees at the maximum rate allowed by State law or as directed by the City Council.

R6C - Continue to require both residential and commercial development to pay impact fees for their fair share of the costs of constructing/providing new facilities so that new development maintains the current service level of park facilities.

R6D - Adjust parkland in-lieu fees as necessary to reflect current land values.

Goal R7: Encourage Shasta County to provide parkland and recreation programs in those unincorporated sectors of the Redding Planning Area in which urbanization is permitted by the County.

R7A - Encourage the County to develop a regional park system or provide financial support to other local jurisdictions providing parkland and amenities for County residents.

Goal R8: Promote a regional approach to recreation facility and program planning/ development.

R8A - Encourage a regional approach to the provision, planning, and development of recreation facilities and programs by promoting cooperation with school districts, special service districts, community-based organizations, neighboring communities, and Shasta County, State, and Federal governments. Recognize that policies and programs restricted to jurisdictional boundaries can impede the provision of high-quality facilities and programs that benefit the citizens of Redding.

Compatibility with Adjacent Land Uses

Although park facilities are typically viewed as an asset to the community and its residents, there are some impacts associated with certain types of park activities and features that may be incompatible with surrounding residential development. The introduction of night lighting for organized sporting events such as softball, football, and soccer; noise generated by organized sport activities that attract large numbers of users or spectators; and increased traffic and parking demands all have the potential to adversely impact surrounding residential neighborhoods.

Goal R9: Minimize the impacts of recreational facilities on adjacent residential development.

R9A - Lighting in parks and recreational facilities should incorporate appropriate mitigation features such as:

- Restrictions on the height, wattage, and/or orientation of the lighting equipment.
- Shielding requirements for light fixtures.
- Limitations on the times the lights may be utilized.
- Installation of vegetative screens where playing fields abut adjacent residential uses.
- Restrictions on lighting color and temperature.

R9B – If feasible, locate Large Neighborhood and Community Parks in locations that ensure adequate access and road capacity to serve these facilities.

R9C – Install signage, traffic-safety features, and traffic-calming devices as necessary to reduce traffic speeds in residential areas surrounding parks and recreational facilities. Encourage walkable and bikeable streets and provide for the safety of pedestrians and bicyclists through on- and off-street amenities.

R9D – Provide off-street parking when necessary to accommodate demands generated by park and recreational facilities while ensuring adequate screening so as to not impact adjacent residences.

Facility Funding and Management

Acquiring adequate funding for park development and ongoing maintenance is a challenge. Since the level of funding ultimately determines the level and quality of recreational opportunities that are provided, the City has and will continue to consider and implement a variety of funding and management strategies for its park and recreation facilities.

Goal R10: Consider establishing adequate funding mechanisms to implement the facility and program needs identified in this Element.

R10A - Adjust park-development fees regularly to reflect current park-development costs.

R10B - Explore innovative means to fund new facilities and maintain existing and future parks.

R10C - Continue to offer "Adopt-a-Park" and "Adopt-a-Trail" programs to encourage volunteer groups, service groups, and other members of the private sector to assist with the development and maintenance of park and recreation facilities. If ongoing maintenance is an issue, innovative ways of providing this service need exploration prior to any prohibition on development of these park and recreation facilities.

R10D - Pursue joint development and service agreements with school districts.

R10E - Ensure all new neighborhood parks, and existing parks where feasible, are placed into Landscape Maintenance Districts if approved through proper protest voting procedures.

Citywide Trail System

The topography and natural setting of Redding, including the Sacramento River and its numerous tributary creeks, provide outstanding opportunities for bicycle and pedestrian travel. As discussed earlier in this Element, development of a Regional River Parkway along the Sacramento River between Shasta Dam and Anderson has long been envisioned as a multi-jurisdictional project that would maximize and enhance the recreational potential of the river. Development of a citywide trail system which links residential uses to commercial, industrial, recreation, and other public uses is also considered a priority. Additional goals and policies regarding commuter bicycle and pedestrian facilities are contained in the Transportation Element.

The trail plan contained in the *Parks, Trails and Open Space Master Plan* is schematically depicted in Figure 2. It depicts both existing and proposed trails, and differentiates between those that will have a paved surface and those which are appropriate for a more natural surface. The plan also addresses interfaces between public trails and private property to protect the security and privacy of adjacent residents.

Similar to the need to acquire suitable lands for public parks at the earliest opportunity, it is also essential that the City continually work to acquire necessary land dedications and easements for

public trails through a combination of direct purchases and the discretionary approval process for new development and redevelopment projects. In many areas along the Sacramento River and creek corridors, development has already occurred before dedications and easements for public trail purposes were required. Acquisition in these areas is more challenging and occurs on a gradual basis as opportunities arises. Acquisition, land dedications, and easements should be pursued irrespective of the status of connections to public streets, active transportation systems, or other related projects to facilitate and protect future public access opportunities and options for additional trail development. Where continuous trails cannot be provided or are not feasible, connections to the City street system or provision of a shared use path can serve to link trail sections.

Goal R11: Promote and facilitate development of a City-wide recreational and active transportation trail system.

R11A - Utilize the schematic trail system plan of the *Parks, Trails, and Open Space Master Plan* to locate future trails. In general, the trail system should:

- Focus on linking neighborhoods to one another, and to other land uses and significant destination points within the community.
- Separate bicyclists and pedestrians from vehicular traffic, whenever feasible.
- Provide continuous trail connections that serve multiple needs, focusing on recreation and active transportation, and combining the two in a multifunctional facility when advantageous.
- Encourage diverse design and construction techniques for trails.
- Ensure appropriate fire safety standards and fire equipment access where feasible.
- Provide trailhead amenities such as parking, restrooms, information boards, signage and maps as funding allows.

R11B - Continue development of the Sacramento River Trail connecting recreational, educational, cultural, commercial, and residential areas/uses.

R11C - Continue to obtain land dedications and/or easements for the development of public trails and the Regional River Parkway through direct purchases and the discretionary approval process for new development.

R11D - Pursue funding which can be used for parkway and trail-system planning, land acquisitions, construction, and maintenance.

R11E – Bicycle and trail systems should be designed in a manner that considers the privacy and security of adjacent land uses, allows for easy maneuvering, and promotes user safety.

R11F - Encourage the establishment of volunteer bicycle-path/recreation-trail patrols to improve the real and perceived level of safety for users of those facilities.

Regional Trail System

As Redding's residents and visitors continue to appreciate the abundant recreational opportunities provided by the City, this plan's vision expands itself to integrate a robust regional trail and recreation system. Various agencies, organizations, and other partners have worked to lay the foundation for a number of recreation/natural areas and regional trails that are a citywide opportunity today. This includes establishment of:

- Right-of-way and construction of the "Westside Trails."
- Extension of the Sacramento River Trail system.
- The development of the Lower Salt Creek Trail.

Enhancing connectivity through a robust trail network to create a regionally integrated system has resulted in an invaluable opportunity for recreational pursuits. Regional integration reduces barriers to access recreational facilities by increasing access points and reducing the need for vehicle ownership or availability to access or utilize the trail system.

Goal R12: Promote and facilitate the development of a regional recreation and active transportation trail system that will complement the City's system.

R12A - Encourage efforts to develop recreational opportunities in the natural areas neighboring the City, including the Swasey Recreation Area, Horsetown-Clear Creek Preserve, the Westside Trails, and the Clear Creek Trail.

R12B – Connect the City's trail system to regional trails where possible and collaborate on the development of a robust trail network.

Safety and Sustainability

Studies of public opinion have found that the level of use and enjoyment of recreational facilities are directly related to an individual's perceptions regarding personal safety. Since the City has invested and will likely continue to invest significantly in the development of park and recreational facilities, it is essential that safety be addressed and ensured through intentional design of new and existing facilities. Likewise, sustainability must be anticipated and strategized in new recreation facility development, as safety and sustainability seek to conserve resources, protect, and preserve parklands for future generations. Though referenced in pieces throughout the Element, and specifically in the Public Health and Safety Element, policies more specific to parks sustainability are found here.

Goal R13: Maintain safety and sustainability in new and existing park facilities and open-space areas.

R13A - Plan for safe and secure park and recreation areas.

R13B – As funding allows, incorporate security lighting and other design features within parks, trails, and recreation facilities to reduce vandalism and improve user safety, while protecting surrounding residential uses from excessive light and glare.

R13C - Consider providing park hosts for all larger parks.

R13D - Utilize Crime Prevention Through Environmental Design (CPTED) principles as appropriate in new parks, trails, and open space facilities. Work with community groups to maintain and expand neighborhood/park watch programs.

R13E - Periodically evaluate existing parks, trails, and open space facilities for safety and design issues.

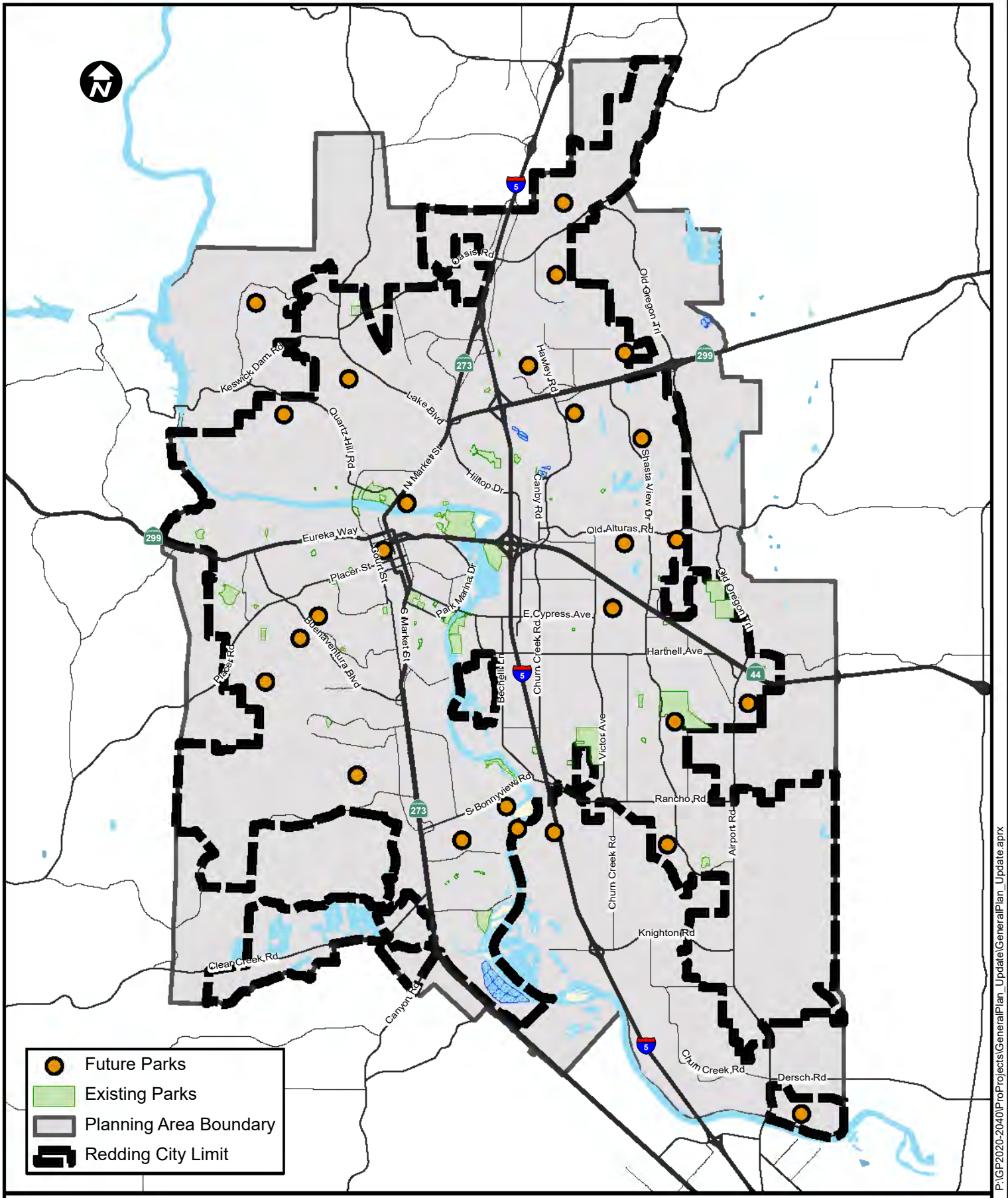
R13F - Consider developing a sustainability plan for use in existing and future parks, including the use of green infrastructure, environmentally-friendly design and land management practices, use of green equipment, public education and engagement, and incorporating strategies assisting with climate change mitigation.

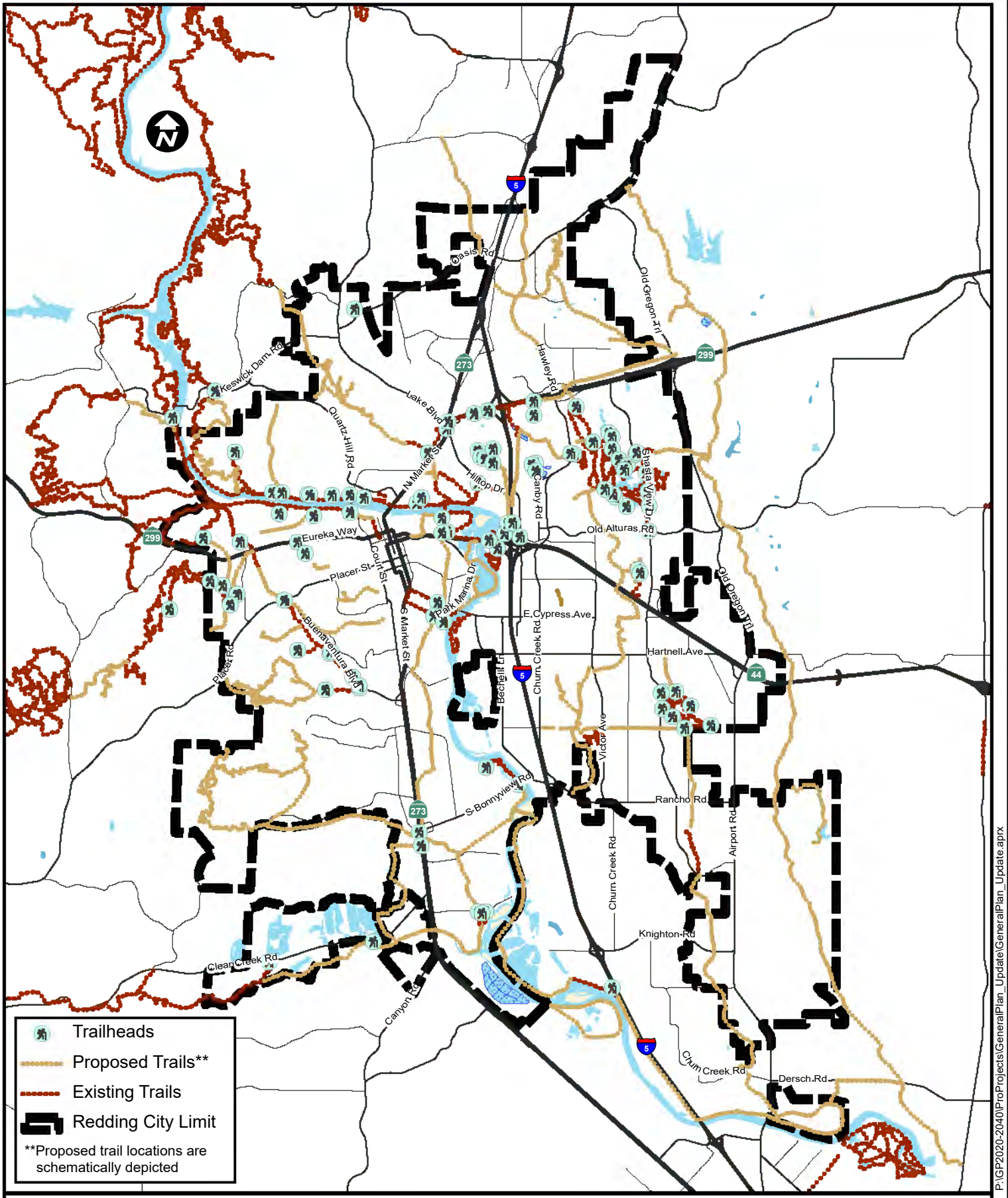
R13G – Provide buffer zones to act as staging and access points for wildfire protection activities where appropriate.

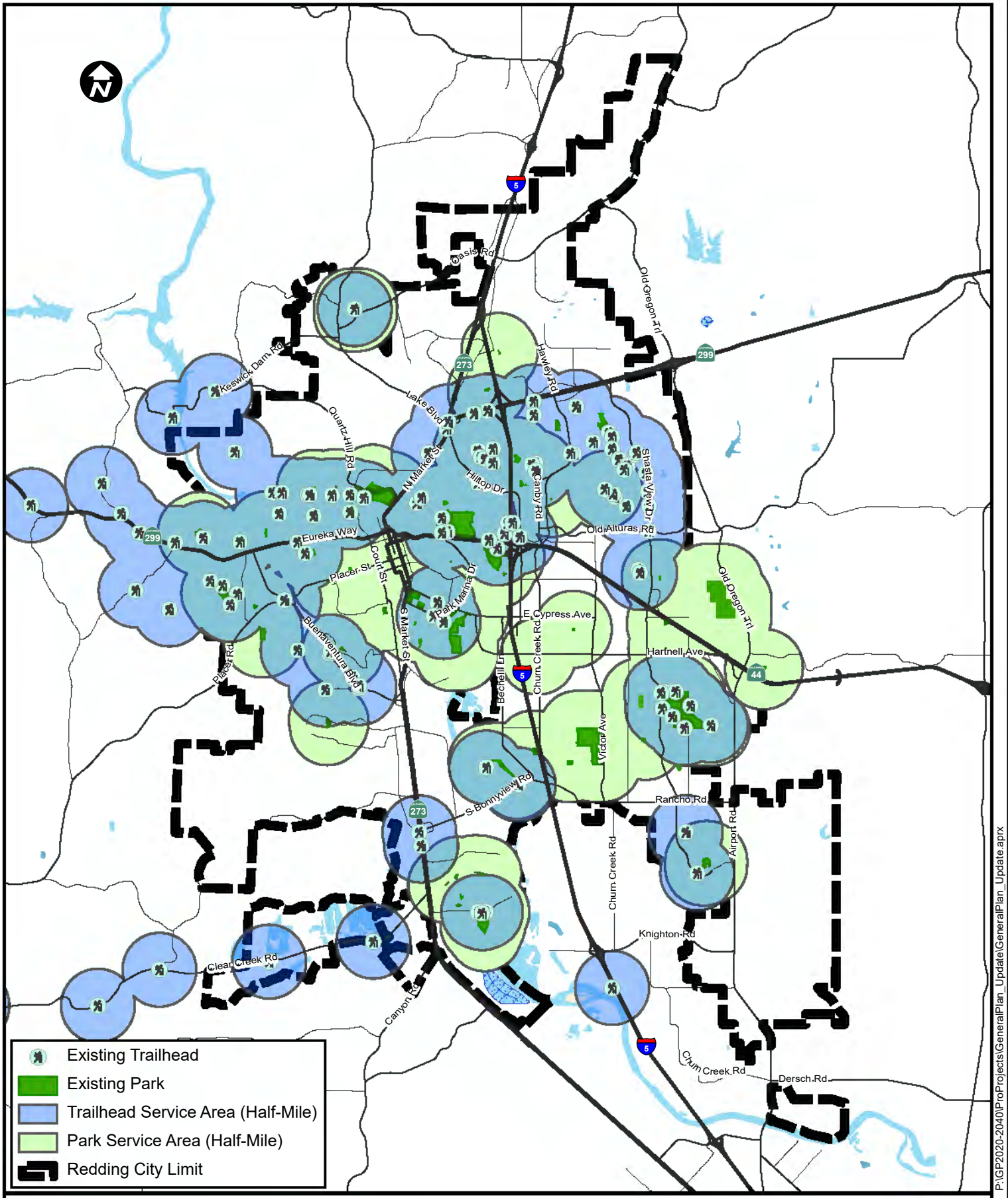
R13H – Consider establishing a comprehensive landscape and vegetation management program incorporating the City's urban landscape and open space lands to:

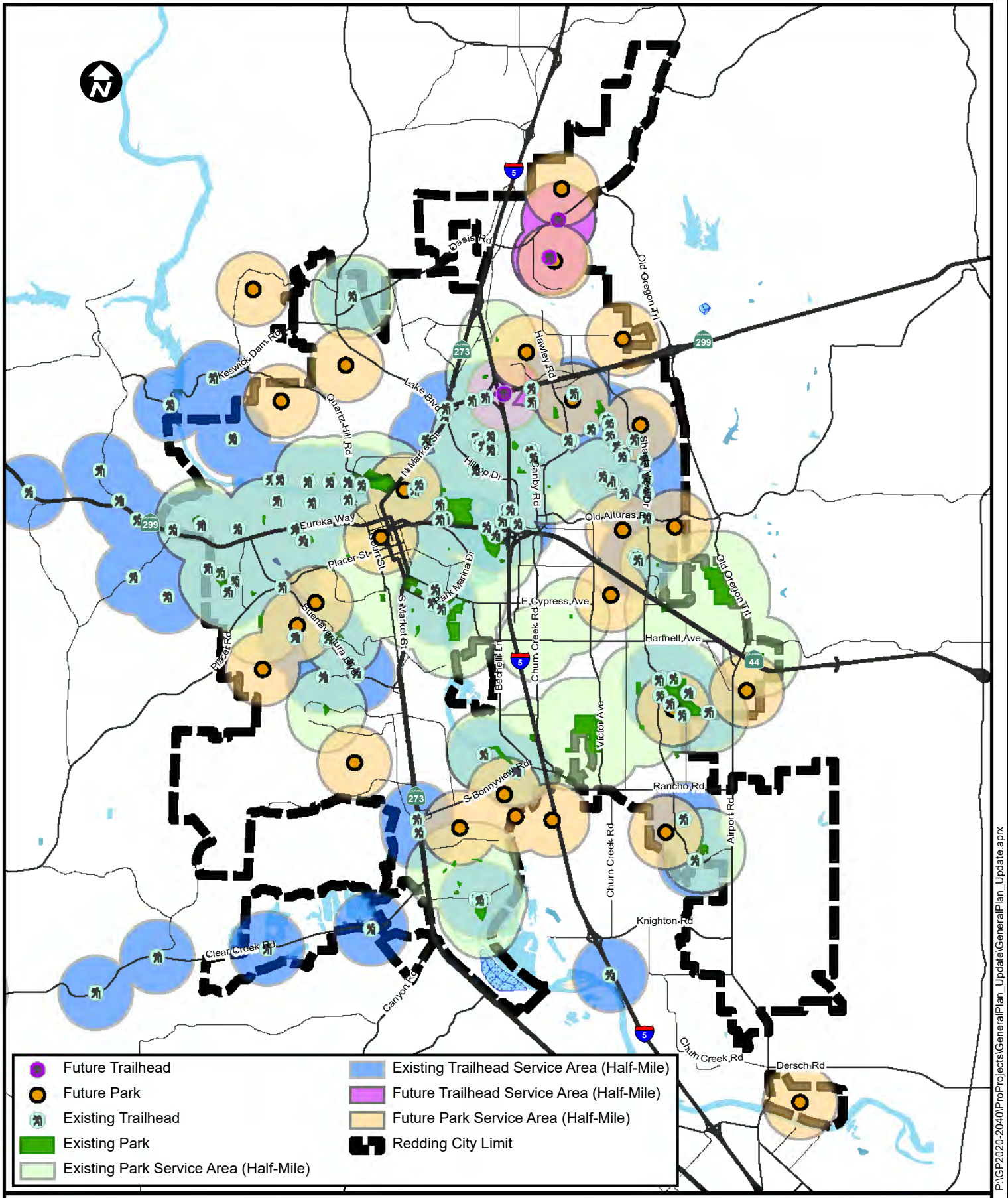
- Enhance the landscape aesthetics of the City.
- Educate the public and promote the importance and benefits of urban forest.
- Minimize heat island effects.
- Provide shade by creating a canopy.
- Pursue and establish adequate funding mechanisms to manage and maintain tree planting, maintenance costs, training, removal, and replacement of public trees.

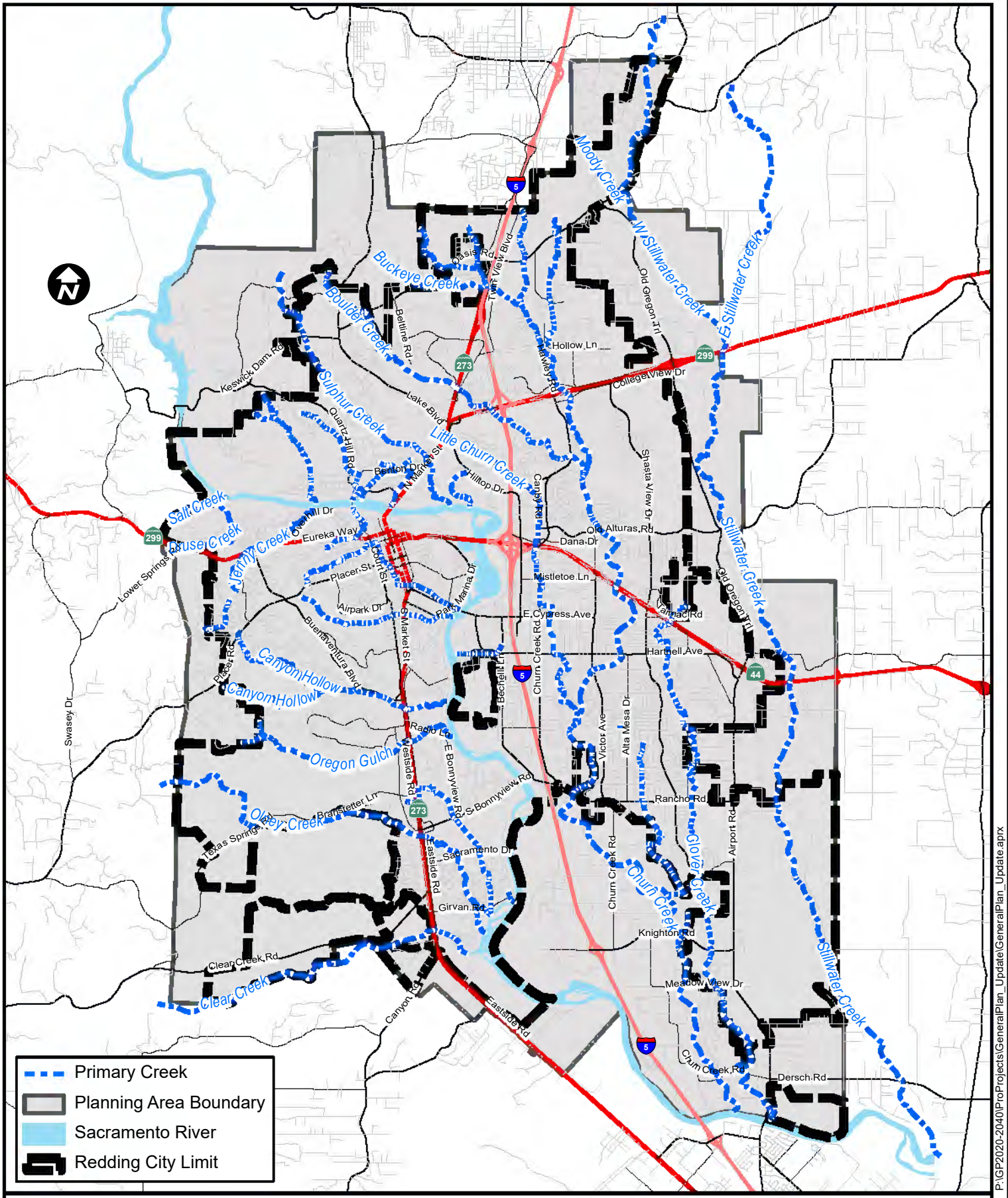
R13I - Update the City's Tree Management Ordinance as necessary to reflect current standards and programs to protect, preserve, restore and replant native trees.

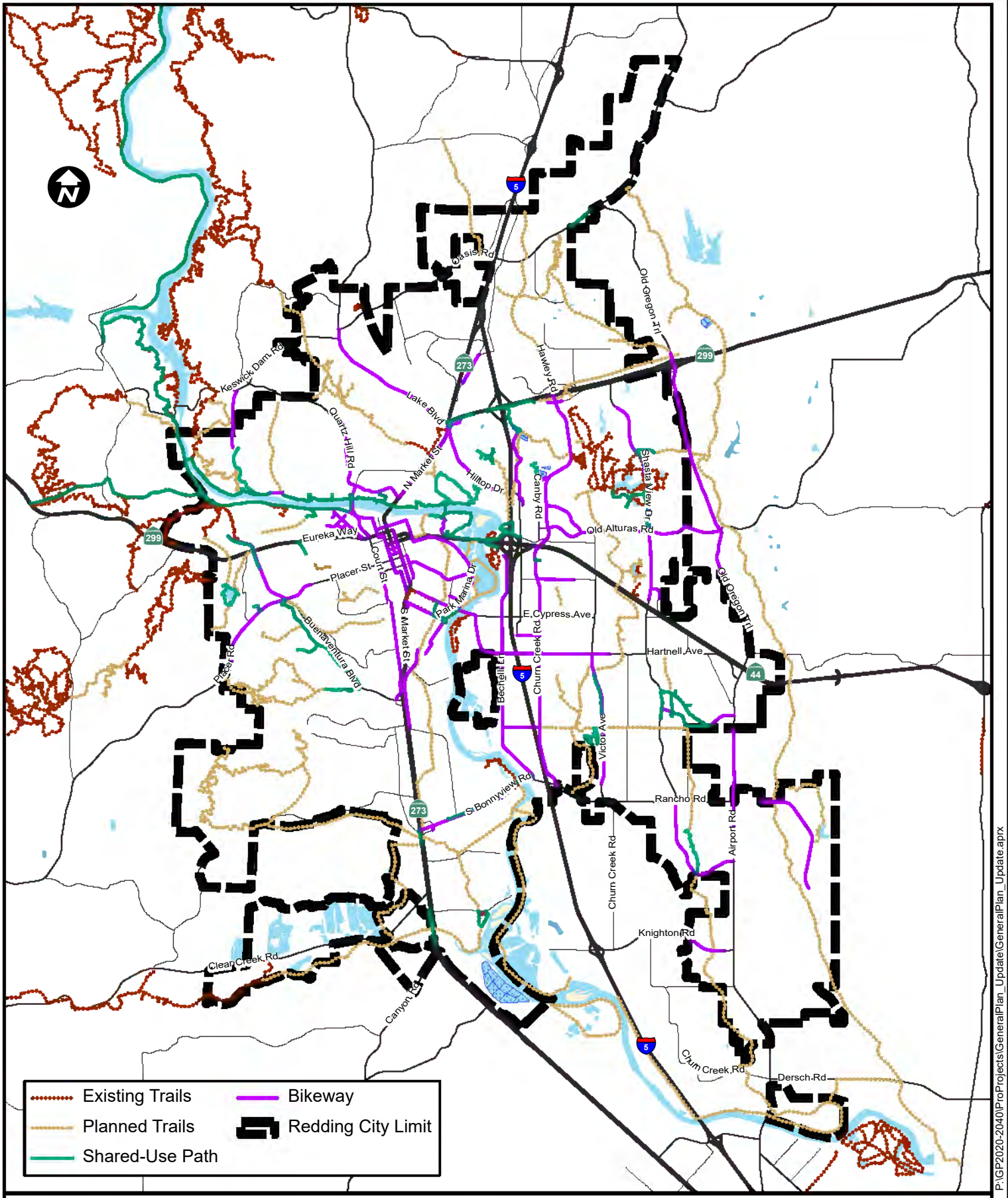

Future Parks
Existing Parks
Planning Area Boundary
Redding City Limit
Oasis Rd
Keswick Dam Rd
Quartz Hill Rd
Lake Blvd
N Market St
Hilltop Dr
Hawley Rd
Canby Rd
Old Oregon Trl
Shasta View Dr
Old Alturas Rd
Eureka Way
Placer St
Court St
Park Marina Dr
S Market St
E Cypress Ave
Harthell Ave
Bechelli Ln
Churn Creek Rd
Victor Ave
Buena Ventura Blvd
Placer Rd
S Bonnyview Rd
Rancho Rd
Airport Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Dersch Rd
5
273
299
44
Miles
0
1
2
R-1
Existing and Future Parks
Print Date: April 13, 2023
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Trailheads
Proposed Trails**
Existing Trails
Redding City Limit
**Proposed trail locations are schematically depicted
Miles
0 1 2
R-2
Trail Plan
Print Date: April 13, 2023
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Keswick Dam Rd
Quartz Hill Rd
Lake Blvd
N Market St
Hilltop Dr
Eureka Way
Placer St
Court St
S Market St
Park Marina Dr
Buenaventura Blvd
Placer Rd
Oasis Rd
Hawley Rd
Canby Rd
Old Alturas Rd
Shasta View Dr
Old Oregon Trl
E Cypress Ave
Hartnell Ave
Bechelli Ln
Churn Creek Rd
Victor Ave
S Bonnyview Rd
Rancho Rd
Airport Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Dersch Rd
5
273
299
44


Existing Trailhead
Existing Park
Trailhead Service Area (Half-Mile)
Park Service Area (Half-Mile)
Redding City Limit
Keswick Dam Rd
Oasis Rd
Old Oregon Trl
Hawley Rd
Lake Blvd
Quartz Hill Rd
N Market St
Hilltop Dr
Canby Rd
Shasta View Dr
Old Alturas Rd
Eureka Way
Placer St
Court St
Park Marina Dr
S Market St
E Cypress Ave
Churn Creek Rd
Bechelli Ln
Harlnell Ave
Placer Rd
Bventura Blvd
Victor Ave
S Bonnyview Rd
Rancho Rd
Airport Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Churn Creek Rd
Dersch Rd
5
273
299
44
Miles
0
1
2
R-3
Existing Service Area
Print Date: April 13, 2023
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Future Trailhead
Future Park
Existing Trailhead
Existing Park
Existing Park Service Area (Half-Mile)
Existing Trailhead Service Area (Half-Mile)
Future Trailhead Service Area (Half-Mile)
Future Park Service Area (Half-Mile)
Redding City Limit
Oasis Rd
Old Oregon Trl
Keswick Dam Rd
Quartz Hill Rd
Lake Blvd
Hawley Rd
N Market St
Hilltop Dr
Shasta View Dr
Canby Rd
Old Alturas Rd
Eureka Way
Court St
Placer St
Park Marina Dr
E Cypress Ave
Buenaventura Blvd
Placer Rd
S Market St
Bechelli Ln
Churn Creek Rd
Victor Ave
Hartnell Ave
S Bonnyview Rd
Rancho Rd
Airport Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
Dersch Rd
299
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Miles
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R-4
Projected Service Area
Print Date: April 13, 2023
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Primary Creek
Planning Area Boundary
Sacramento River
Redding City Limit
Moody Creek
W Stillwater Creek
E Stillwater Creek
Buckeye Creek
Boulder Creek
Sulphur Creek
Little Churn Creek
Salt Creek
Reuse Creek
Jenny Creek
Canyon Hollow
Oregon Gulch
Olney Creek
Clear Creek
Churn Creek
Glover Creek
Stillwater Creek
Oasis Rd
Twin View Blvd
Bellline Rd
Keswick Dam Rd
Lake Blvd
Hollow Ln
College View Dr
Old Oregon Trl
Shasta View Dr
Quartz Hill Rd
Benton Dr
N Market St
Hilltop Dr
Canby Rd
Old Alturas Rd
Dana Dr
Mistletoe Ln
Eureka Way
Placer St
Airpark Dr
Park Marina Dr
E Cypress Ave
Hartnell Ave
Lower Springs Rd
Buenaventura Blvd
Placer Rd
Swasey Dr
Rancho Ln
E Bonnyview Rd
S Bonnyview Rd
Westside Rd
Bechelli Ln
Churn Creek Rd
Victor Ave
Alta Mesa Dr
Rancho Rd
Airport Rd
Brandstetter Ln
Texas Springs Rd
Eastside Rd
Sacramento Dr
Girvan Rd
Knighton Rd
Meadow View Dr
Clear Creek Rd
Canyon Rd
Churn Creek Rd
Dersch Rd
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Miles
R-5
Primary River and Creek Corridors
Print Date: April 13, 2023
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Existing Trails
Planned Trails
Shared-Use Path
Bikeway
Redding City Limit
Keswick Dam Rd
Quartz Hill Rd
Lake Blvd
N Market St
Oasis Rd
Hilltop Dr
Hawley Rd
Old Oregon Trl
Shasta View Dr
Old Alturas Rd
Eureka Way
Placer St
Court St
Park Marina Dr
E Cypress Ave
Hartnell Ave
Churn Creek Rd
Victor Ave
Airport Rd
Rancho Rd
Knighton Rd
S Bonnyview Rd
Buenaventura Blvd
Placer Rd
Clear Creek Rd
Canyon Rd
Dersch Rd
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Miles
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Trails & Bikeways
Print Date: April 13, 2023
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Public Review Draft Economic Development Element

Introduction

Purpose and Context

Economic development is a priority for local government and influences policymaking due to its importance to the community fabric. Over time, the framework of what economic development entails has evolved to address indicators of economic vitality that include a comprehensive understanding of community factors that influence the health of the local economy. The metric for economic success is often reduced to a measurement of the number of jobs created. The 2023 Economic Development Element goals and policies recognizes the growing scope of economic development by addressing broader areas such as workforce, quality of life and place, equity, and technology, in addition to the traditional economic development metrics.

The primary function of this element is to establish a framework that will guide consistent and equitable economic growth and direct the focus of policymaking to address the expanding scope of economic development. Embracing the vast economic shifts of the past decades, this element recognizes that fostering a successful climate for local entrepreneurship and employment is the best way to develop a healthy economy that can attract and retain primary industry, highly-paid remote and out-of-the-area workers, and outside investment. When orchestrated well, these elements can create and sustain a prosperous and sustainable economy. Training opportunities, education, and innovative approaches to development and technology are key aspects to advancing the economy.

Furthermore, this element acknowledges the interconnectedness of the social environment and economic performance. Goals include typically non-economic topics in order to address what are considered barriers to participation in the local economy. These could be obstacles to receiving education or training, hurdles in starting a business, or barriers to employment. Implementing policies that tackle these issues represents an opportunity to engage segments of the population that have missed avenues to be engaged in the local economy, or who would otherwise leave the area in search of different educational opportunities or higher earnings.

The City of Redding is geographically well-positioned and sufficiently populated to grow in its role as a regional commerce, education, healthcare, and services hub for the North State. The element recognizes that this role is not a passive feature of our geography, but rather a status that must be actively cultivated as markets shift and macro-economic trends materialize. The unpredictable and often destabilizing outcomes of events such as the 2008 Financial Crisis and the Covid-19 Pandemic which stretched from 2020 to 2022, as well as the emerging and ubiquitous presence of technology in consumer products, industrial settings, and services have long-lasting effects that shape the economy today and highlight the unpredictability of the economy when considering long-term strategies.

This plan complements existing City Council policies and establishes the direction of the City's economic development which is organized into a series of goals and policies. Goals in this element range from business attraction, retention, and expansion to workforce development, and even

topics such as technology and healthcare. The overall objective of this element is to develop a competitive edge for the City that retains local talent, preserves the unique features of the local economy, and attracts high-earning jobs, sustainable business investments, and quality employers.

Authority

In addition to the General Plan elements listed in Government Code Section 65302, local governments may adopt "any other elements or address any other subjects which… related to the physical development of the county or city" (Government Code Section 65303). The Economic Development Element is an optional element that provides specific guidance on industrial, retail, and related development in the City.

Goals and Policies

Traditional Drivers of Local Economic Development

Economic development is a field that is traditionally driven by employment and entrepreneurship metrics, with an emphasis on jobs created. These fundamental characteristics remain a crucial component of this General Plan element even as a more diverse set of goals and policies coalesce around what typically defines economic development. The goals in this section address business expansion, attraction, and retention, workforce development, tourism, and leveraging our unique asset in the municipal airport. The policies in these goals build on the understanding in previous planning documents that investment, entrepreneurship, tourism, and commerce are the direct drivers of employment in the local economy.

ED1: Take a holistic approach in efforts to further develop Redding's economy.

ED1A - Actively promote and encourage opportunities for local economic development, education, housing, hiring, internships, and employment from cradle to career so as to increase resident retention, improve and grow a strong local economy, achieve a positive jobs-to-housing match; retain critical educational resources and human capital, reduce regional commuting, gas consumption and greenhouse gas emissions, and ensure equitable opportunities for all residents in the City and region to thrive.

ED2: Implement business attraction and retention strategies.

ED2A - Work with Shasta County Economic Development Corporation (EDC) and other appropriate organizations to attract large business investments to the region that can grow the local economy, ideally leading to an increase in the median household income.

ED2B - Expand efforts to eliminate obstacles that may hinder business development, as appropriate.

ED2C - Strive to establish Redding as a recognized host for innovative industries in the North State.

ED2D - Support partnerships and community efforts that increase the resilience of local businesses that draw visitors to Redding and create a desirable community to live in.

ED2E - Encourage the use of opportunity zones and other programs to attract economic investment opportunities.

ED2F - Endeavor to host or promote a consolidated directory of community events and local happenings to encourage community engagement with the business community as staff resources and funding permits.

ED2G - Strive to ensure that the Zoning Ordinance and Zoning Map are updated as necessary to accommodate next-generation technology.

ED2H - Endeavor to improve City resources for businesses and business representatives for user-friendliness and to incorporate plain language where possible.

ED2I - Maintain a proactive and service-minded culture toward business opportunities in the City of Redding.

ED2J - Endeavor to develop policies that encourage opportunities in the informal (gig) economy such as ride-share, at-home businesses, and other future opportunities.

ED2K - Encourage commercial growth and actively seek new retail business that establishes Redding as a retail hub for the North State.

ED2L - Be receptive to community feedback about desired products and services and share information with entrepreneurship and business attraction partners.

ED2M - Continue to provide competitive utility rates for businesses interested in relocating to, and that are already located in, Redding, to the extent feasible.

ED3: Attract, promote, and retain primary industry growth.

ED3A - The General Plan Diagram should identify an inventory of developable industrial land generally free of significant development constraints in order to accommodate projected industrial growth over a 20-year timeframe.

ED3B - Consider pursuing environmental mitigation strategies designed to remove impediments to industrial growth, including mitigation banks, habitat conservation plans, regional storm-water detention, and air quality programs.

ED3C - Consider utilizing available public utility business attraction incentives to support economic development and attract advanced manufacturing or other specialized industries.

ED3D - Guide potential businesses to appropriate zoning districts for their desired activity.

ED3E - Promote and leverage Redding's location on Interstate 5 as an incentive to attract primary industry.

ED3F – Consider developing a business retention and expansion incentive program to encourage industries to provide higher paying jobs.

ED4: Cultivate a sustainable and adaptable workforce.

ED4A - Strive to regularly assess the availability and cost of housing, and to pursue available programs to help ensure that people who work in Redding can live in Redding.

ED4B - Support community efforts in childcare, healthcare, education, and transportation to mitigate barriers to entry into the workforce, to the extent feasible.

ED4C - Endeavor to assist efforts to attract and retain professionals in fields with current and anticipated shortages such as engineers, medical professionals, and educators.

ED4D - Encourage market-rate housing development and income-qualifying housing development to achieve adequate levels of workforce housing.

ED4E - Continue to be an employer of choice in the region by modeling best employer practices, as supported by the City Council.

ED4F - Pursue unique financial and other opportunities that may become available to proactively communicate with local employers, as appropriate. Consider partnering with other organizations to develop training programs to promote employment for residents of all ages and abilities and reduce barriers to employment.

ED4G - Explore opportunities to expand the local childcare market, including with partnerships and grant funding, as a method of activating additional areas of the local labor force, as funding and staffing levels allow.

ED4H - Support community partners in education to expand the capacity of specialized programs in areas of need, such as medical education, as feasible.

ED4I - Consider additional metrics of success beyond simple job creation, such as evaluating the number of well-paying, high-quality jobs created and/or standard of living measurements such as increases in Redding's median household income.

ED5: Leverage community strengths to enhance the economic opportunities of tourism in Redding.

ED5A - Encourage the diversity of innovative small and local businesses, including startups, that advance tourism in Redding.

ED5B - To the extent feasible, leverage partnerships to directly market Redding to specialty retail, cultural, and entertainment businesses to foster interest in local development.

ED5C - Leverage partnerships, as appropriate, to recruit additional hospitality businesses to increase exposure to the tourism market.

ED5D - Consider alternative mechanisms of reinvesting tourism-related taxes, such as transient occupancy tax, to assist in revitalizing neighborhoods in need of assistance.

ED5E - Consider utilizing existing special districts and establishing new districts to take advantage of distinct economic opportunities such as tourism.

ED5F - Endeavor to leverage the economic opportunities for tourism of key natural assets such as the Sacramento River.

ED6: Invest in the success of the Redding Regional Airport.

ED6A - Consider developing transportation alternatives to connect the Redding Regional Airport with downtown and other vital economic areas.

ED6B - Facilitate growth and retention of passenger and cargo air travel through the Redding Regional Airport, to the extent feasible.

ED6C - Encourage the expansion of vendor capacity of the Redding Regional Airport through strategic space planning and accessible infrastructure connections.

ED6D - Endeavor to maintain favorable rates for air service providers to encourage the expansion of services offered through the Redding Regional Airport.

ED6E - Promote the development of services in appropriate locations within the airport to augment revenue streams for the Redding Regional Airport and provide convenience and comfort to airport patrons and employees. Such development typically consists of hotels, retail, rental facilities, parking, ground vehicle fueling, restaurants, and similar uses.

ED6F - Strive to expand the Redding Regional Airport throughput capacity by strategically expanding parking, fuel, and transportation facilities.

ED6G - Explore the possibility of partnerships with trade organizations and government partners to provide tax incentives and special business districts to promote trade through the Redding Regional Airport.

Amenities that Support Local Economic Development

Quality of life, community assets, and amenities have an important role in the health of the local economy. These attributes create an attractive and inclusive community for skilled professionals and investors who are critical to fulfilling the vision of the City as a hub of commerce, services,

education, and healthcare. Appropriately valuing these resources, the draw that they have for tourism and workforce attraction and retention, and their interface with economic development is essential to maintaining and growing a healthy economy. The following goals and policies include strategies to address the goal to attract and retain employees in key fields by investing in needed transportation and other infrastructure, supporting investment in underdeveloped neighborhoods, and maintaining features of the community that are important to Redding's identity.

ED7: Support efforts to improve quality of life and reduce the cost of living.

ED7A - Address infrastructure needs and constraints on economic growth utilizing feedback from the business community, as appropriate.

ED7B - Preserve and maintain community assets such as structures, spaces, and natural features that hold cultural, financial, and historical significance for people who live in Redding, whenever feasible.

ED7C - Identify opportunities to expand market access (including national and global markets) through targeted infrastructure improvements and additional modes of transportation, as funding allows.

ED7D - Strive to improve transportation connections in the City with particular attention to equitable access to economic opportunities.

ED7E - Utilize funding sources that can help drive investment in underdeveloped areas of Redding and continue to pursue competitive funding opportunities.

ED7F - Appropriately use public safety resources to support economic well-being and safety.

ED7G - Support municipal electrification efforts that improve the affordability of daily life and the attractiveness of Redding as a place to work or start a business, as feasible.

ED7H - Support the continued reliability of municipal utility infrastructure to avoid economic damage resulting from unreliable service delivery, as feasible.

ED8: Strive to provide opportunities, experiences, education, and career training that will foster confident, knowledgeable, and skilled leaders and workers.

ED8A - Work to leverage community partnerships to support the development of youth programs in the City, as appropriate.

ED8B - Endeavor to establish Redding as the education hub for the North State, specifically post-secondary and technical education.

ED8C - Continue to work with other organizations to advocate for the placement of a four-year public university in Redding or its immediate area.

ED8D - Encourage the development of a plan to retain young workers who would otherwise leave the area to seek higher education or earning potential.

ED8E - Encourage the development of a plan to re-attract individuals who have already left the area through unique opportunities in employment, training, and education.

ED8F - Consider participation in the state Community Economic Resilience Fund (CERF) program by engaging with the North State regional conveners for the state (Sierra Institute for Community and Environment and the North State Planning and Development Collective – Chico State Enterprises) in order to access funding opportunities from major state investments in economic development.

ED9: Leverage the economic benefits of cultural assets and businesses.

ED9A - Continue to recognize and support the Redding Cultural District and other cultural assets. Consider assisting community organizations to attract community sports teams in a variety of sports.

ED9B - Encourage the development of facilities that provide inclusive, creative spaces and projects that express City identity through their design.

ED9C - Consider seeking funding for ancillary assets, including parks that benefit economic health and community desirability.

ED9D - Support efforts to expand, improve, or add cultural assets outside of Downtown to other areas of the City where such efforts are supported by their historical context, natural amenities, or other characteristics, as feasible.

ED9E - Support cultural assets, and businesses that are dependent on them, by exploring ways to increase community access to cultural areas, to the extent feasible.

ED10: Support efforts to expand local healthcare capacity and services as funding allows.

ED10A - Support the growth of the healthcare and medical industries to establish Redding as an innovative hub of far northern Sacramento, as feasible.

ED10B - Support existing medical services and medical training infrastructure and their expansion, as feasible.

ED10C - Support efforts to develop medical research capacity and attract institutions that invest in medical research infrastructure or facilities, as feasible.

ED10D - Support local workforce development initiatives that seek to attract or retain medical professionals in all disciplines, including veterinary medicine, in the Redding area, as feasible.

Forward-Looking Planning

The remaining economic development goals and policies address the importance of maintaining a strategic outlook, and various topics related to proactivity, innovation, and technology. In the early 2020s, changes occurred at all economic levels from global to local, and staying receptive to ever-changing and growing markets and demands is necessary to maintain a competitive edge. Likewise, in order for the local economy as an entire unit to remain competitive against other comparable and proximal economies, there is an urgency behind these goals. Community cohesion, equitable growth, and innovation can produce sustainable economic success in the long term. These goals continue to address the core of economic development, job creation, and retention, by addressing inclusion and barriers to entry for employment and entrepreneurship. Additionally, responsiveness to the evolution of the digital marketplace and technology, in general, enhances job creation opportunities that may occur over the lifetime of these goals and policies.

ED11: Foster a robust, inclusive and equitable local economy with opportunities for all residents.

ED11A - Encourage unique and innovative opportunities for work and entertainment that foster a sense of community identity.

ED11B - Work with community partners and business development organizations, as appropriate, to establish resources and social infrastructure for entrepreneurs in the creative economy.

ED11C – Support community partners in their pursuit of opportunities to develop programs and facilities that mitigate barriers to employment and entrepreneurship for members of disadvantaged communities in Redding, as feasible.

ED11D - Strive to develop partnerships to build and maintain an innovation facility that provides local opportunities for research and development.

ED11E - Work to provide equitable access to resources and services for unhoused people, including access to local economic opportunities such as training, employment, and entrepreneurship, as funding allows.

ED11F - Support the equitable deployment of comprehensive utility infrastructure such as fiber and broadband technology within the City to promote economic opportunity across the board, as feasible.

ED12: Enhance partnerships with other government units, non-profits, and community organizations.

ED12A - Strive to leverage the strengths of existing economic development partnerships and non-profit organizations in the community to maximize the benefits of their respective areas of expertise in the economic development arena.

ED12B - Endeavor to work with Connect non-profit organizations on projects of interest to foster and support a collaborative environment in seeking funding and project execution.

ED12C - Recognize and support the work of community organizations, including non-profit organizations, in supporting economic growth and the development of public spaces and amenities that aid overall economic development goals, as needed.

ED12D - Seek to cultivate partnerships with non-profits, community-, and faith-based organizations as a means to reach out to and work with stakeholders with varying interests and expertise.

ED12E - Collaborate with tribal government organizations, as appropriate, to increase the benefits to the community that would not otherwise be achieved by organizations acting independently.

ED13: Promote digital economic opportunities and be receptive to next-generation technologies.

ED13A - Consider establishing broadband service goals and consider developing an action plan for promoting and encouraging service deployment and adoption.

ED13B - Research funding sources for a City broadband fiber ring and consider taking steps to identify and link relevant anchor institutions in and around the City of Redding, as funding permits.

ED13C - Coordinate with business, industry leaders, and education providers, as appropriate, to identify emerging technologies and address their impacts on the economy.

ED13D - Encourage adopting co-working spaces, workforce development partners, and other economic drivers as anchor institutions for broadband rollout.

ED13E - Prioritize cyber-security, especially related to critical infrastructures such as the power plant and other utilities and public safety infrastructure, to the extent feasible.

ED13F - Consider exploring the use of digital platforms to remove community barriers to entrepreneurship, including startups, employment, education, and community enjoyment.

ED13G - Work to reduce barriers to EV charging infrastructure in Redding, to the extent feasible.

ED13H - Foster an infrastructure-ready posture so that the City has the capability to take advantage of new or rapidly-emerging technologies.

ED13I - Support openness to industrial and commercial automation that improves job quality and minimizes job redundancy, as feasible.

ED14: Promote innovation in City decision-making and processes as a platform for future economic growth.

ED14A - Strive to ensure that zoning requirements remain current and adaptable to meet the needs of emerging technologies and new business models.

ED14B - Work with the City's economic development partners to identify and implement ways to publicize geographic data and other resources that help identify innovation-friendly spaces and opportunities for entrepreneurs and outside investors.

ED14C - Seek to foster a culture of solution-based decision-making at all levels of local government which provide consistent and clear outcomes for members of the public.

ED14D - Explore opportunities for automation of processes to increase citywide efficiency.

Public Review Draft Community Health, Wellness, and Environmental Justice Element

Introduction

Purpose and Content

The purpose of the Community Health, Wellness, and Environmental Justice Element is to foster the health and well-being of all Redding residents. Communities throughout the United States are facing rising levels of obesity, heart disease, asthma, diabetes, and other health issues resulting from a sedentary lifestyle and unhealthy diet, as well as exposure to contaminants, particulate matter, and poor air quality. This Element recognizes disparities in accessing amenities that allow for an active lifestyle, healthy diet, and protection from exposure to contaminants, particulate matter, and poor air quality, as well as unhealthy environmental and social conditions. Redding, like most communities, is not homogenous in terms of its residents' incomes, health, and access to healthy food, recreation, medical services, safe and affordable housing, transportation alternatives, and other elements of modern life. This lack of information and inequitable access to services results in negative health impacts for many residents.

This Element contains goals and policies crafted to address improving environmental health; access to housing, health care, and healthy food; creating safe and cohesive neighborhoods; responding to extreme weather events; and providing access to parks, recreation, and open space. Since physical settings can influence the perceptions, behaviors, and experiences of individuals and communities, providing neighborhoods with greenspace/parks, improved tree canopy, sidewalks/trails, and similar neighborhood improvements can have a positive emotional and physical effect on residents, relieving and/or reducing trauma that residents of socioeconomically disadvantaged groups experience.

Due to the interdisciplinary nature of health issues, most of the elements of the General Plan contain broad goals and policies related to health and quality of life. Examples include:

- Community Development and Design Element
- Transportation and Circulation Element
- Natural Resources Element
- Parks, Trails, and Recreation Element
- Public Facilities and Services Element
- Public Health and Safety Element
- Housing Element
- Noise Element

Community Development and Design Element: Contains policies that promote development patterns intended to make efficient use of land such as encouraging mixed-use neighborhoods, infill development, facilitating retail services in residential neighborhoods, allowing residential uses in commercial zoning districts, encouraging higher density housing along transportation corridors and near services, reimagining older commercial centers and facilitating the use of incentives that will lead to a mix of uses, including residential uses. (See the following goals and related policies: CDD1, CDD2, CDD10, CDD11, and CDD13.)

Transportation and Circulation Element: Includes policies to reduce auto dependence and encourage bicycle and pedestrian travel, including the construction of "Complete Streets," multiuse trails, and similar facilities. (See the following goals and related policies: T1, T2, T3, and T5.)

Natural Resources Element: Contains policies that promote sustainability by supporting open space acquisition and providing an interconnected open space system with bicycle and pedestrian connections between residential development and schools, employment, commercial nodes, and other destinations. Policy guidance for better air quality and consideration for preparing and adopting a Climate Action Plan for Redding is provided in the Natural Resources Element. (See the following goals and related policies: NR5, NR8, and NR14.)

Parks, Trails, and Recreation Element: Contains policies that support the construction of new parks and related amenities, an integrated trail and sidewalk system, and recreational programs for residents in all walks of life within walking/biking distance of neighborhoods. (See the following goals and related policies: R1, R5, R6, R11, and R12.)

Public Facilities and Services Element: Includes policies that address energy efficiency, use of renewable energy, water conservation, maximization of recycled water usage, and solid waste source reduction and recycling. (See the following goals and related policies: PF4, PF5, and PF6.)

Public Safety Element: Includes policies intended to minimize the potential for loss of life and property due to seismic and geologic hazards, flooding, and wildland fire. (See the following goals and related policies: HS1, HS2, HS3, and HS4.)

Housing Element: Includes policies and identifies significant opportunities to provide future housing for all income segments of the community, including those with disabilities. The needs for emergency shelters and transitional and supportive housing are also addressed. (See the following goals and related policies: H1, H2, and H5.)

Noise Element: Includes policies addressing appropriate noise levels for sensitive and other land uses.

In addition to the comprehensive policies noted above, this Element refines many of those community-wide policies to address the particular needs of residents, who, by virtue of their current living and socio-economic environment, may not have adequate access to information and services that are intrinsic to healthy living.

Specific topics addressed within this element include:

- *Equity and Environmental Justice*
- *Environmental Effects*
- *Housing*
- *Public Facilities, Safety, and Infrastructure*
- *Health Care and Healthy Food Access*
- *Healthy Neighborhoods*

Authority

In addition to the General Plan elements listed in California Government Code (CGC) Section 65302, local governments may adopt "any other elements or address any other subjects which . . . relate to the physical development of the county or city." The 2000-2020 General Plan incorporated general health topics into a "Health and Safety Element." This Environmental Justice Element focuses directly on creating a healthier environment for all Redding citizens and emphasizes the welfare of the community, especially disadvantaged communities.

California Government Code Section 65302 mandates that jurisdictions with identified disadvantaged communities (Disadvantaged Communities) incorporate an Environmental Justice (EJ) Element or equivalent policies into their General Plans if certain criteria are met pertaining to defined geographic, socio-economic, public health, and environmental hazards. Utilizing the screening tools provided by the Governor's Office of Planning and Research (OPR) it has been determined that the City of Redding (City) does not have a Disadvantaged Community under the first definition of a disadvantaged community under SB 1000. However, the City does contain 17 census tracts with household incomes at or below 80 percent of the statewide median income, which are considered "low-income areas" under the second criterion of identifying disadvantaged communities. These low-income areas are considered disadvantaged if they are disproportionately affected by environmental pollution that can lead to negative health impacts. There are four areas that meet the criterion through the analysis of CalEnviroScreen's pollution burden indicators. Table 1 summarizes how the City of Redding meets the SB 1000 criterion.

Table 1 summarizes the low-income census tracts that experience disproportionate pollution burdens according to CalEnviroScreen's indicators.

Table 1 Low-Income Census Tracts in Redding with High Pollution Burden

Tract Number	Diesel PM Percentile	Lead Percentile	Cleanup Sites Percentile	Hazardous Waste Percentile
6089010100	**94.5**	54.3	**83.8**	**75.8**
6089010703	**82.6**	13.3	68.9	16.3
6089010200	70.1	**79.6**	74.6	50.5
6089010500	40.2	57.1	**76.7**	**76.6**

Bolded values are scores above the 75th percentile, indicating a disproportionate pollution burden

Figure EJ-1 depicts the location of the affected census tracts.

Additionally, the tribal nation of Redding Rancheria is a Disadvantaged Community on the southern border of the City. The area within a half mile of the reservation that is in the City of Redding is also eligible for cap-and-trade funds under SB 535 and AB 1550 but is *not* considered a Disadvantaged Community. While this area near the Redding Rancheria does not technically qualify as a Disadvantaged Community under SB 1000, given its consideration under SB 535 and AB 1550, this area within the City is considered appropriate for Environmental Justice related actions as addressed in this Element.

Redding recognizes that the state-mandated data sources used to determine Disadvantaged Communities subject to CGC Section 65302 at the time of the preparation of this Element (2023) will gradually be updated, and that the requirements are likely to evolve. Local conditions will also change over time, and, for data to be useful, periodic monitoring of conditions that impact the underserved and vulnerable residents in particular is appropriate, and is addressed in the goals and policies below.

Goals and Policies

Equity and Environmental Justice

The Guiding Principles of this General Plan include commitments to prioritize equitable treatment of all residents in determining how the City will develop in the coming decades. This includes improving access to the information all residents need to understand policy implications and address policymakers on decisions that may impact their quality of life or living conditions.

As used in this Element, *equity* recognizes that each individual or group of people needs different resources and opportunities available to them in order to thrive. For instance, some people may require access to cooling shelters during severe weather events or better access to mental and physical health care and healthy food options, while others may need assistance in understanding written materials they are provided related to proposed government actions or available services due to language or other barriers. The goals and policies of this Element specifically address the needs of residents who may be underserved and vulnerable given their current circumstances.

The term *environmental justice* addresses the equitable distribution of environmental risks and benefits across a community. This Element addresses the intent of CGC Section 65302 by incorporating goals and policies to address the unique or compounded health risks of residents by taking actions, in concert with public and private service providers, to decrease air pollution and noise exposure, to establish development types that promote a healthier living environment, and to increase access to a broad range of community resources, including public facilities, food access, safe and sanitary homes, opportunities for physical activity, and civic engagement.

The City was assisted in reviewing and refining goals and policies of this Element by inviting 27 members of the community from a broad cross section of agencies and organizations, most of which represented often underserved and disadvantaged residents.

Goal EJ1: Support an equitable and comprehensive approach to civic engagement through broad public outreach and encourage diverse community member involvement in decision-making processes.

EJ1A – Promote and facilitate the meaningful, effective participation and fair treatment of people of all races, languages, cultures, ages and incomes in developing, adopting, implementing, and enforcing plans and policies related to public health, programs, land use planning, and environmental issues. Consider establishing partnerships with community volunteer groups to periodically organize in-person and virtual town hall sessions to promote effective communication between City staff and residents.

EJ1B – Support programs and services that address equity issues, providing an ongoing engagement with residents and agencies/organizations working with underserved and vulnerable residents to determine their unique or compounded needs.

EJ1C – Partner with representatives of local Wintu tribes, Black, Latino, and Southeast Asian representatives, and community-based organizations that work with underserved and vulnerable residents to increase engagement on local initiatives and issues. Seek feedback on public decisions through traditional and online forms of communication, such as email, mobile phone apps, and online forums.

EJ1D – Continue to provide City activities in a fair and transparent manner. Seek to engage traditionally underrepresented residents in public decision-making processes.

EJ1E – Support accessible and culturally appropriate opportunities for all people regardless of ability, age, race, color, national origin, language, gender identity, sexual orientation, housing status, or income levels.

EJ1F – Consider researching the necessity and viability of providing vital City documents and announcements in a manner and in languages as may be necessary to reflect the linguistic needs of the communities being served.

EJ1G – Explore models that have resulted in effective consultation practices with local Wintu tribes with the goal to develop appropriate protocols for outreach and consultation on land use

policies and development proposals. Establish, as may be necessary and appropriate, a process to provide representatives of these tribes with timely notice of development applications for General Plan Diagram Amendments, Zoning Map Amendments, tentative subdivision maps, use permits, and other appropriate development applications and to invite representatives to address concerns with staff prior to scheduled public hearings.

EJ1H – Explore options to increase cultural competence and equip City of Redding staff for more culturally relevant engagement.

Goal EJ2: Recognize that Redding does not consist of a single homogenous community and that income disparities, health issues, transportation limitations, housing inadequacies, and similar situations can result in disproportionate environmental and other impacts on various residents in the community.

EJ2A – As funding and staff resources permit, periodically monitor and assess the availability of new data sources that will assist the City in determining locations and impacts on underserved and vulnerable residents who are not identified by the screening tools provided by the state, and informing strategies to help mitigate impacts in identified locations consistent with the intent of Senate Bill 1000 (CGC Section 65302).

EJ2B – Collaborate with local and regional organizations that work extensively with underserved and vulnerable residents to identify and determine appropriate criteria for the inclusion of communities not currently identified as Disadvantaged Communities and the nature of their environmental burdens, or other compounded health risks, concerns, and needs.

Environmental Effects

Housing in proximity to railway lines/switch stations, freeways, industrial land uses, and similar facilities can result in exposure to pollution and noise. Redding residents, especially those living in close proximity to state highways, Interstate 5, and the Union Pacific Railroad are affected by environmental pollutants generated by heavy traffic. Further, housing built prior to current standards may have included the use of lead-based paint. Redding's downtown area, for example, includes some of the City's oldest housing stock, and many may still contain lead-based paint materials. Similarly, "west" Redding, as the initial center of the City, contained numerous gasoline and diesel fuel service stations whose supply tanks were found to have leaked petroleum products into the soil. Those known to the City and regulatory agencies have since been mitigated in accord with State and Federal law. West Redding also contained a former Pacific Gas and Electric (PG&E) construction yard which required remediation of soil contaminants. The Benton Landfill was closed in 1992 in accordance with the state guidelines and undergoes the required monitoring today.

While the locations of state highways and the Union Pacific Railroad are fixed, it is recognized that the construction of new major roads and expansion of capacity for major roadways or the introduction of certain industrial uses can negatively impact residents. As such, establishing new locations or the expansion of existing facilities should consider impacts on existing and future residents, regardless of income, race, or other considerations, that can negatively impact health

and quality of life. Underserved and vulnerable residents often lack the financial resources to move to other locations and/or may not participate in land use decision making-process, and are left with limited options to deal with the consequences of changes to their living environment. Community equity policies above address issues regarding land use decisions. Goal 3 and its related policies primarily address the reduction of air pollution, noise, and lead-based paint exposure that may impact underserved communities and vulnerable populations.

The Air Quality Element referenced contains policy guidance on land use and related interface (transportation, parks, trails, recreational amenities, and public facilities), assessing the air quality impacts of new development proposals, coordinating policy and development project review with the Shasta County Air Quality Management District, recognizing the air quality benefits of trails, recreation facilities, and open space amenities, as well as public facility infrastructure energy efficiency, in addition to addressing greenhouse gas emissions. The policies below refine the goals and policies of the Air Quality and Noise chapters and incorporate strategies to reduce their disproportionate impact, to the extent feasible, on underserved communities and vulnerable populations.

Redding is also prone to extreme heat as summertime temperatures tend to exceed 100 degrees on many days during the summer months. Extreme heat may pose a serious threat to the health and safety of residents. The policies of this section include measures to combat the adverse effects of extreme weather, especially extreme heat. The most recent version of the Local Hazard Mitigation Plan (LHMP) discusses in detail the dangers of extreme heat, including its adverse effects on public health, and the risks of fire, utility disruption, and bad air quality.

Goal EJ3: Strive to reduce exposure to air pollution, noxious odors, and other environmental impacts throughout the City and region and incorporate strategies to reduce the unique and compounded environmental impacts and risks, particularly in underserved communities.

EJ3A – Utilize the goals and policies contained within the Natural Resources Element to address impacts on the community at large. Strive to ensure that no part of the community suffers disproportionately from adverse human health or environmental effects, and enable all residents to live in a clean and healthy environment.

EJ3B – Utilize the Zoning Ordinance and other development regulations to require adequate buffering and/or effective technologies to protect sensitive land uses where appropriate. Generally, avoid siting new sensitive land uses (such as residences, daycare centers, educational and/or health facilities), within 1,000 feet of a distribution center that accommodates more than 100 trucks per day, and/or more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU operations exceed 300 hours per week. Such buffers may vary in depth depending on the type and concentration of pollutants.

EJ3C – Partner with local, regional, and federal agencies to seek grants and other opportunities towards the development and expansion of clean air centers, building ventilation upgrades, and other available and accessible technological advancements to provide better air quality and to reduce negative health impacts during wildfires and extreme weather events.

EJ3D – Utilize measures contained in the Noise Element to mitigate potential construction and operational noise, vibration, and dust impacts on the community.

EJ3E – Consider the development and adoption of a Climate Action and Resiliency Plan. Support plans, standards, regulations, incentives, and investments, and seek grants and other funding to reduce the impacts of climate change on vulnerable residents.

EJ3F – Work with Shasta County Air Quality Management District or other appropriate entities to develop a public information campaign to educate residents on the risks and mitigation measures to be undertaken when living within 1,000 feet of a freeway.

EJ3G – Monitor changes in technology that will prevent and mitigate transportation-related noise and air quality impacts on residential and sensitive uses in the community. Support traffic and highway improvements that will reduce noise and air quality impacts of vehicles. Alternatives to sound walls should be considered where possible.

EJ3H – Discourage locating truck routes on primarily residential streets and in Disadvantaged Communities.

Goal EJ4: Strive to mitigate the effects of extreme weather events such as summer heat and excessive cold, through a set of quantitative goals for built and natural environments with a special focus on underserved and/or vulnerable residents.

EJ4A – Develop and implement urban tree retention and planting strategies and programs to reduce the negative effects of heat and to improve the quality of life in Redding. Work to educate residents on the community benefits of planting and caring for trees.

EJ4B – Consider using appropriate tools to identify locations with tree canopy cover gaps and seek funding as appropriate to implement measures to expand tree planting within neighborhoods that lack desirable tree canopy coverage.

EJ4C – Consider establishing an Urban Forest Management Program that will, among other things, identify appropriate species for the variety of urbanized and open space conditions in Redding. Reinforce the City's commitment to maintaining its status as a "Tree City USA" community and its extensive open space system.

EJ4D – Consider amending development codes and/or incentivizing the use of cool roof technologies, porous pavements, and energy and water-efficient residential and commercial building upgrades.

EJ4E – Partner with local organizations to identify and address dangers and challenges brought on by extreme weather events to underserved and vulnerable residents, and develop and implement extreme heat awareness campaigns to engage the public in measures that can be effective at work, home, and during activities.

EJ4F – Partner with interested community groups and jurisdictions to develop and implement, as funding may permit, an extreme weather preparedness program including establishing refuge centers in case of extreme weather events, diseases, or declared emergencies. Consider adaptive reuse of public and community facilities to serve as shelters during crisis.

Housing

The Housing Element contains, among other things, a site inventory of vacant lands available to address the long-term needs of all income groups within the community; an assessment of governmental and non-governmental constraints to providing housing; and goals and policies intended to provide adequate housing opportunities. These policies include the construction of new residential units, providing subsidies for those individuals and families that are in need, energy efficiency, homeless persons assistance, and the rehabilitation of existing housing units. The Element must be approved by the state Department of Housing and Community Development (HCD) and is required to be updated every eight (8) years. The following policies of this Element reinforce those of the Housing Element.

Goal EJ5: Identify and address the housing needs, and foster healthy living conditions and quality of life, for people of all backgrounds and incomes.

EJ5A – Utilize the policies of the Housing Element to provide safe and affordable housing opportunities to all segments of the community, while recognizing that overcoming the financial impediments of developing a more affordable housing stock will require additional state and federal financial and other resources.

EJ5B – Promote the upgrade, maintenance, and rehabilitation of existing housing stock/aging residential neighborhoods, to discourage loss of affordable housing and displacement of existing residents. Provide effective public engagement programs to enhance rehabilitation of substandard housing and increase awareness of codes and compliance measures to improve unsafe and unsanitary living conditions for all residents including those with disabilities.

EJ5C – Encourage the development of senior and workforce housing as well as assisted living services throughout the City, especially in walkable areas that are served by transit, and are in close proximity to commercial goods and services.

EJ5D – Strive to increase the number of ADA-compliant housing units in the community to meet the needs of residents of all abilities, especially in those projects where the City participates in the funding of housing development. Identify incentives that may lead to the development of more accessible units developed by the private market.

EJ5E – Strive to ensure that building and zoning code compliance inspections taken in response to complaints result in a reduction and remediation of housing-related health risks in the City. When resolving complaints, strive to prevent unnecessary evictions or displacement of housing-precarious populations within the City.

EJ5F – Increase citizen awareness and implementation of water and energy efficiency, weatherization, indoor mold exposure mitigation, disaster risk reduction, climate change adaptation and mitigation, wildfire smoke protection, and safety from extreme heat through public engagement, incentives, and assistance with a special focus on underserved residents and areas with vulnerable populations.

EJ5G – Promote the effective implementation of smoke-free workplaces and multi-family housing environments to reduce smoke-related death and disability in the City.

EJ5H – Continue to abate lead-based paint pollution in residences as part of the City's housing programs, as appropriate and as funding is available.

EJ5I – Consider working with landlords in prioritizing the City's efforts to address issues such as dumping, overcrowding, graffiti, unpermitted plumbing and electrical, and lack of building and yard maintenance in areas with underserved and vulnerable residents.

EJ5J – Explore opportunities, such as community land trusts and other cooperative forms of ownership for housing, that have the potential to increase community wealth in disadvantaged communities.

EJ5K – As funding allows, continue to provide resources towards assisting those who lack shelter including, but not limited to, health care, training, mental health and rehabilitation, and access to housing.

Public Facilities, Safety, and Infrastructure

All residents of the City depend on functional and safe transportation, public safety, water, wastewater, storm drain, and electric systems and services. The Public Facilities and Services Element addresses basic infrastructure, public safety, transportation, parks, libraries, and other public services. The Public Safety Element addresses community police, fire, and other important services. The following goals and policies focus on the additional needs of those residents who may lack access to one or more basic City services or may need assistance in accessing them.

Goal EJ6: Strive to ensure that public facilities and services are equitably located, distributed, well-maintained, and accessible to all residents.

EJ6A – Work proactively with residents as appropriate, so that existing and new public facilities, infrastructure, and services are addressed in a manner that reflects the community's needs and shifting priorities of future demands in an equitable manner, to the extent feasible.

EJ6B – Coordinate with water, sewer, waste management, electricity, police, and fire service providers to provide continuation of efficient and effective service, delivery, operations, and maintenance. Identify and prevent potential system vulnerabilities and coordinate with partnering agencies that provide public facilities to establish response teams or contingency plans in case of failure or emergency.

EJ6C – Periodically evaluate public facilities for health hazards and maximize their safety and resiliency. Locate new public facilities in an equitable manner that strives to ensure that they are well-designed, energy efficient, and compatible with adjacent land uses.

EJ6D – When updating public facility master plans, consider prioritizing projects that address the health and safety of residents whose facilities need remediation over facility expansions wherever appropriate.

EJ6E – Strive to ensure that residents have access to a variety of recreational amenities by adhering to the policies of the Community Development and Design; Natural Resources; Parks, Trails, and Recreation; and Public Safety Elements of this General Plan; and the Parks, Trails, and Open Space Master Plan. Consult with representatives of local Wintu tribes as appropriate to locate and construct with cultural considerations in mind.

EJ6F – Establish streetscapes that facilitate and integrate safe and comprehensive walking, cycling, and other modes of active transportation.

EJ6G – As funding and resources permit, implement the adopted Parks, Trails and Open Space Master Plan, which will advance the role of parks, recreation, and community services to establish parks as centers for community health, smart growth, equitable development, and environmental justice.

EJ6H – Consider prioritizing improvements to sidewalks and the pedestrian environment in the Disadvantaged Communities and areas around schools and parks.

Goal EJ7: Address emergency and safety concerns throughout the City, especially in areas with underserved and vulnerable residents. Strive to effectively communicate the implementation strategy to all residents.

EJ7A – Engage with residents to identify, review, and research policies and programs that could improve areas with difficulties, improve safety, and reduce crime and community violence. Collaborate with a diverse universe of partners, such as community groups, community-based organizations, representatives of local Wintu tribes, neighborhood watch groups, public health advocacy groups, sociologists, epidemiologists, police, and field experts to produce an accessible synthesis of research evidence and recommendations.

EJ7B – Prioritize the implementation of proven best practices for crime reduction, especially in residential, commercial, and public areas.

EJ7C – Encourage the use of Crime Prevention Through Environmental Design (CPTED) principles in the design of public projects, public buildings, parks, trails, and recreational facilities.

EJ7D – Expand emergency response services as needed due to community growth. Consider the potential future growth in the "Primary and the Secondary Growth Areas" of the General Plan in planning for future fire stations, police substations, and related facilities, to meet future needs and demands.

EJ7E – As funding and resources permit, implement an emergency evacuation plan and consistently educate residents on:

- *Access*: Evacuation routes laid out for residents to use in case of emergency.
- *Signage*: Signage, wayfinding, and designated evacuation routes.
- *Communication*: Timely notices that may arrive in a variety of languages to accommodate the linguistic preferences of all residents and through multiple communication avenues including Assistive Listening Devices.
- *Assistance*: Available assistance programs to aid resident evacuation during emergencies.

EJ7F – Identify emergency shelters as a part of the emergency preparedness program, partnering with community groups and jurisdictions, to develop and implement refuge centers in case of extreme weather events, disease, or declared emergency. Consider adaptive reuse of public and community facilities to serve as emergency shelters during crisis.

EJ7G – Consider and implement emergency policies and procedures that appropriately allow service and companion animals to be permitted access to emergency facilities.

Health Care and Healthy Food Access

While there is increasing awareness regarding the benefits of fresh and healthy foods, both locally and regionally, many families and individuals face challenges when it comes to accessing healthy food. The lack of convenient access, rising costs and/or a lack of nutrition education, and barriers to healthy food access have been linked with chronic disease, increased mental health challenges, and higher medical costs. The following goals and policies address several actions the larger community can take in addressing these issues.

Goal EJ8: Strive to reduce, and ultimately eliminate, health disparities as a result of lack of access to health care services and healthy food.

EJ8A – Facilitate the growth of affordable and quality health care across a full range of health services (e.g., primary, preventative, specialty, prenatal, mental, vision, and dental care, and substance abuse treatment and counseling) in locations that are accessible to community residents. As appropriate, consider the use of incentives and innovative practices and partnerships with Shasta County Health and Human Services Agency, hospitals, medical practices, and other healthcare providers, to explore the feasibility of off-site health clinics and workshops for residents and other means to improve healthcare access and services.

EJ8B – Promote access to mental and physical health services and preventative treatments. Collaborate with clinics, hospitals, and other healthcare providers to explore the feasibility of off-site health clinics and workshops for residents including bringing health care directly to people experiencing unsheltered homelessness.

EJ8C – Work with community organizations and others to expand access to healthy, fresh, and affordable food and resources for all residents and to provide information that will assist in healthy eating and reducing food waste. Consider such strategies as partnering with local farmers and/or agencies to establish and promote strategies and food assistance programs for providing fresh and healthy food options throughout the community

EJ8D – Support, encourage, and incentivize, as appropriate, local agricultural initiatives, cultural practices, and local Wintu tribes' traditions and customs related to food gathering.

EJ8E – Work with local organizations and agencies to identify neighborhoods that do not have convenient access to healthy food. Support and consider incentives to encourage the development of new, and transportation to, retail venues that sell fresh produce, including farmers' markets, community-supported agriculture programs, and grocery stores in underserved areas.

EJ8F – Support, encourage, and incentivize as appropriate the development of accessible community gardens/edible landscapes as an amenity in multi-family and mixed-use developments, senior centers, community centers, schools, and other public spaces where feasible. Encourage new multi-family housing developments to contain designated areas or other shared spaces for community gardens and consider allowing these areas to count towards common open space requirements.

EJ8G – Work with public and private agencies as well as interested members of the development community to explore and establish innovative and community-responsible ideas such as integrating agriculture into residential neighborhoods to optimize fresh and healthy food access for all residents, to the extent feasible.

EJ8H – Work with emergency response agencies to provide access to healthy food through partnerships with food banks, pantries, community organizations, and other mutual aid networks during emergency response situations.

EJ8I – Prioritize healthy food development incentives in areas with a high ratio of convenience stores, fast food establishments, liquor, and tobacco retailers.

EJ8J – Prioritize improvements to address access to healthy food in underserved communities based on demand. Consider conducting a foodshed study examining produce within a 100-mile radius to:

- Determine supply of locally grown food.
- Reduce carbon footprint and travel times.
- Address dietary limitations.

EJ8K – In coordination with partner agencies and organizations, explore opportunities to eliminate or reduce the use of tobacco, alcohol, marijuana, and illicit drugs by the community's youth.

EJ8L – Consider establishing distance limits for tobacco retailers from schools, parks, teen centers, and/or similar youth-oriented facilities.

Healthy Neighborhoods

Land use planning and neighborhood design have the potential to improve the overall health and quality of life of residents by incorporating uses and design features that encourage people to live active and healthy lifestyles. This is evident in Redding by the number of residents and visitors using Redding's extensive trail system for both exercise and recreation. Neighborhoods with safe and pleasant pedestrian and bicycle networks that provide convenient access to parks, transit, and a mix of commercial and service uses generally encourage outdoor recreation and active transportation (i.e.; walking and bicycling). In addition, neighborhoods that provide residents with convenient access to grocery stores, farmers' markets, and/or community gardens generally encourage residents to eat healthier food and lead a healthier lifestyle. Land use planning and neighborhood design can also encourage social interaction, reduce crime, help seniors age in place, and minimize exposure to pollution. These features serve to enhance the livability of residents and may promote a sense of well-being to individuals residing in the neighborhoods.

Goal EJ9: Promote land use patterns, urban design, and neighborhood revitalization and activities that contribute to the development of cohesive, safe, and healthier neighborhoods.

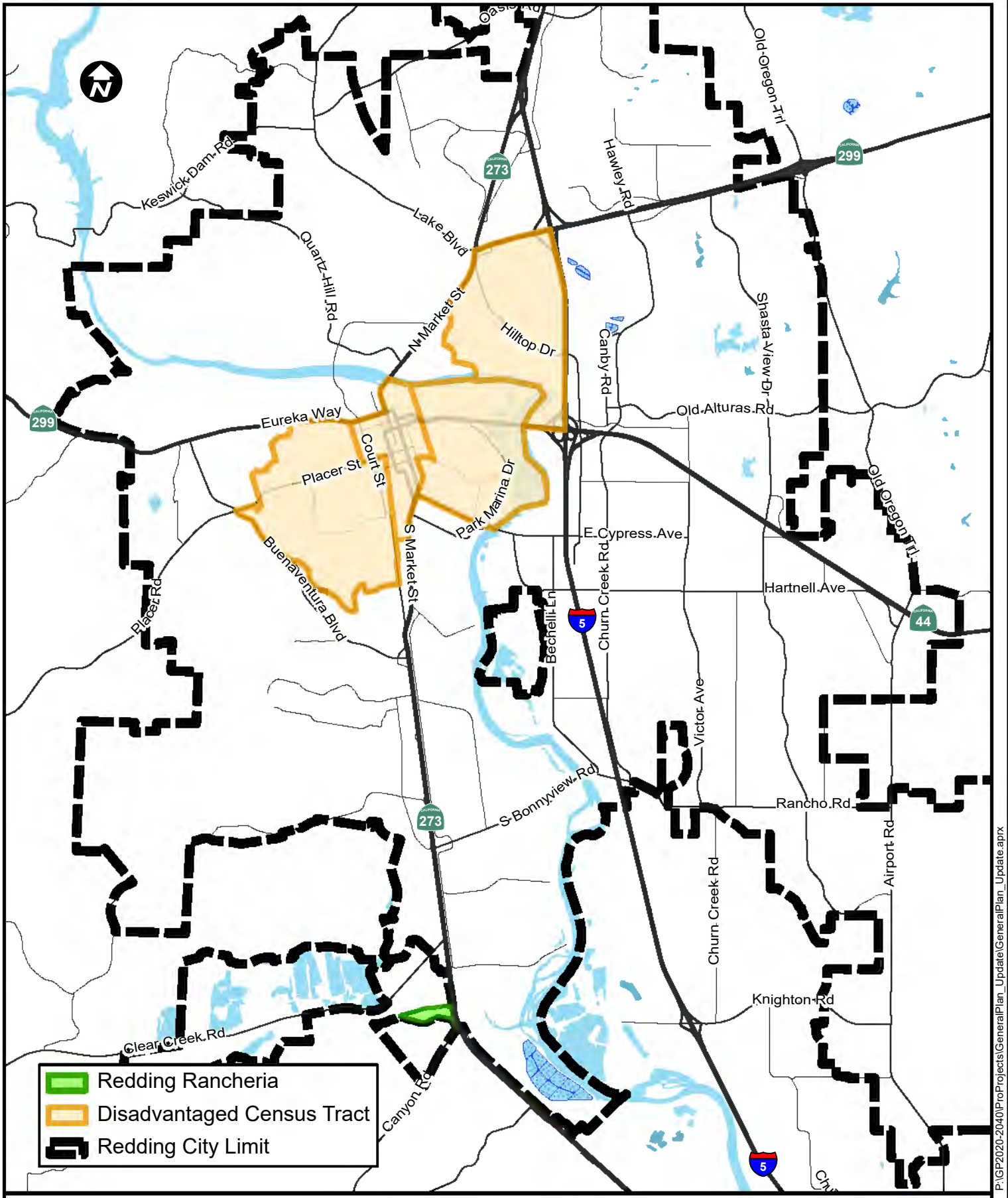
EJ9A – Develop and implement neighborhood programs and improvements to meet the needs and priorities of underserved and vulnerable residents as funding allows.

EJ9B – Consider targeted approaches to the built environment with a focus on Master Plans and Strategic Plans that prioritize street improvements, location of new parks, infrastructure and improvement projects, increased sense of safety, and enhanced social interaction in areas of the City that historically have been underserved, through activities, events, and opportunities that involve engagement and resident feedback to develop improvement strategies.

EJ9C – Support investment in underserved areas to help them become more vibrant and cohesive neighborhoods with quality housing, employment options, community facilities, transportation connections, enhanced social and health services, and active public spaces.

EJ9D – Recognize, understand, and address the historic displacement of community groups within the City by considering and integrating the perspectives of such groups into land use planning and use planning efforts where appropriate.

EJ9E – Collaborate with schools, youth, and other public and private organizations to promote overall well-being by engaging families, children, teens, and seniors of all cultural backgrounds and abilities in healthy lifestyle behavior, daily physical activity, and social engagement.


Keswick Dam Rd
Quartz Hill Rd
Lake Blvd
Oasis Rd
Old Oregon Trl
Hawley Rd
Shasta View Dr
Canby Rd
Old Alturas Rd
N Market St
Hilltop Dr
Eureka Way
Placer St
Court St
Park Marina Dr
Buenaventura Blvd
S Market St
E Cypress Ave
Hartnell Ave
Bechelli Ln
Churn Creek Rd
Victor Ave
Placer Rd
S Bonnyview Rd
Rancho Rd
Airport Rd
Knighton Rd
Clear Creek Rd
Canyon Rd
299
273
5
44
Redding Rancheria
Disadvantaged Census Tract
Redding City Limit
Miles
0 0.5 1
EJ-1
Identified Disadvantaged Communities
Print Date: February 23, 2023
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Appendices

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Appendix 3-2 Redding 2023-2045 General Plan Planning Horizon Forecast Model

Land Use Summary for Redding Planning Area (including Sphere of Influence)

Scenario/Area	2020			2045 General Plan			Growth (2020-45)			
Land Use	Redding City	Redding Sphere	Total	Redding City	Redding Sphere	Total	Redding City	Redding Sphere	Total	*Growth Pct*
Dwelling Units	**44,322**	**4,615**	**48,937**	**51,678**	**5,325**	**57,003**	**7,356**	**710**	**8,066**	***16.48%***
Single-Family	30,326	3,372	33,698	35,543	3,722	39,265	5,217	350	5,567	*17%*
Multi-Family (2-4 units)	4,443	141	4,584	4,669	141	4,810	226	0	226	*5%*
Multi-Family (5+ units)	7,592	130	7,722	9,505	490	9,995	1,913	360	2,273	*29%*
Mobile Home	1,961	972	2,933	1,961	972	2,933	0	0	0	*0%*
Employment	**50,778**	**4,801**	**55,579**	**59,712**	**5,648**	**65,360**	**8,934**	**847**	**9,781**	***17.60%***
Education	1,698	1,214	2,912	2,043	1,352	3,395	345	138	483	*17%*
Food	3,554	52	3,606	3,738	146	3,884	184	94	278	*8%*
Government	5,624	352	5,976	5,953	352	6,305	329	0	329	*6%*
Industrial	4,903	1,155	6,058	7,380	1,427	8,807	2,477	272	2,749	*45%*
Medical	7,764	62	7,826	8,585	122	8,707	821	60	881	*11%*
Office	10,096	633	10,729	11,590	736	12,326	1,494	103	1,597	*15%*
Retail	7,649	329	7,978	8,033	379	8,412	384	50	434	*5%*
Service	8,015	816	8,831	9,807	819	10,626	1,792	3	1,795	*20%*
Other	1,475	188	1,663	2,583	315	2,898	1,108	127	1,235	*74%*
School Enrollment	**21,115**	**15,559**	**36,674**	**24,965**	**17,359**	**42,324**	**3,850**	**1,800**	**5,650**	***15%***
Grade School	12,114	729	12,843	15,664	1,129	16,793	3,550	400	3,950	*31%*
High School	7,273	0	7,273	7,573	0	7,573	300	0	300	*4%*
University	1,728	14,830	16,558	1,728	16,230	17,958	0	1,400	1,400	*8%*
Jobs per DU			**1.14**			**1.15**			**1.21**	
Single-family share of DU's			69%			69%			69%	

20%

16%

			Dwelling Units					School Enrollment (students)			Employment (jobs)													
TAZ	JURIS	Community	Single-family	Multi-family (2-4 units)	Multi-family (5+ units)	Mobile homes	Total dwelling units	Grade school	High school	University	Education	Food	Government	Industrial	Medical	Office	Retail	Service	Other	Total employment	Net (new)	Net (old)	Single-family	Multi-family (5+ units)	
			SFDU	MF2_4DU	MF5_DU	MHDU	**TOT_DU**	Stugrd	Stuhgh	Stuuni	Empedu	Empfood	Empgov	Empind	Empmed	Empofc	Empret	Empsvc	Empoth	**Emptot**			SFDU	MF5_DU	
	201 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	204	0	0	0	0	0	0	**204**			0 0	0	
	202 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	15	0	0	0	0	0	0	**15**	0	0	0 0	0	
	203 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	75	0	0	**75**	0	0	0 0	0	
	204 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	9	1	0	**10**	0	0	0 0	0	
	205 Redding	Redding	0	0	0	0	**0**	0	0	0	0	35	0	0	0	0	0	9	0	**44**	0	0	0 0	0	
	206 Redding	Redding	17	14	0	0	**31**	0	0	0	0	0	20	26	2	8	3	9	0	**68**	0	0	17 0	0	
	207 Redding	Redding	6	0	35	0	**41**	0	0	0	0	25	0	16	0	0	36	10	6	**93**	0	0	6 35	0	0
	208 Redding	Redding	146	102	78	0	**326**	0	0	0	0	0	0	47	0	5	4	0	2	**58**	0	0	146 5	73	73
	209 Redding	Redding	119	31	16	1	**167**	0	0	0	0	0	0	1	4	24	1	2	0	**32**	0	0	119 0	16	
	210 Redding	Redding	7	5	17	0	**29**	0	0	0	0	1	0	23	0	48	13	48	7	**140**	0	0	7 0	17	
	211 Redding	Redding	29	16	0	0	**45**	0	0	0	0	0	0	19	0	6	56	18	14	**113**	0	0	29 0	0	
	212 Redding	Redding	0	0	10	0	**10**	0	0	0	0	7	0	30	0	0	1	1	0	**39**	0	0	0 10	0	0
	213 Redding	Redding	82	9	48	0	**139**	0	0	0	0	4	1	1	2	6	0	21	3	**38**	2	2	80 42	6	18
	214 Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	82	0	0	8	12	8	**113**	0	0	0 0	0	
	215 Redding	Redding	131	17	12	0	**160**	261	0	0	19	0	0	0	8	1	0	0	0	**28**	0	0	131 0	12	
	216 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	6	0	0	0	11	10	**27**	0	0	0 0	0	
	217 Redding	Redding	249	4	11	0	**264**	0	0	0	0	0	0	0	0	2	0	0	1	**3**	66	66	183 0	11	
	218 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	101	0	2	7	8	9	**127**	0	0	0 0	0	
	219 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	139	196	0	0	0	3	3	**341**	0	0	0 0	0	
	220 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0 0	0	
	221 Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	374	0	58	20	0	0	0	**452**	0	0	1 0	0	
	222 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	6	22	0	0	0	0	0	**28**	0	0	0 0	0	
	223 Redding	Redding	40	13	0	0	**53**	0	0	0	0	0	0	15	1	2	3	32	27	**80**	0	0	40 0	0	
	224 Redding	Redding	33	4	0	1	**38**	0	0	0	0	0	75	9	0	0	0	1	1	**86**	0	0	33 0	0	
	225 Redding	Redding	77	6	6	0	**89**	353	0	0	18	0	0	0	0	6	0	0	0	**24**	10	10	67 0	6	
	226 Redding	Redding	44	8	0	0	**52**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	44 0	0	
	227 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0 0	0	
	228 Redding	Redding	2	4	0	0	**6**	0	0	0	0	0	0	24	0	0	1	3	0	**28**	0	0	2 0	0	
	229 Redding	Redding	36	8	0	7	**51**	0	0	0	0	0	3	0	0	7	6	8	0	**24**	12	12	24 0	0	
	230 Redding	Redding	79	6	0	1	**86**	0	0	0	0	0	0	4	0	1	1	0	0	**6**	0	0	79 0	0	
	231 Redding	Redding	372	30	18	4	**424**	0	0	0	0	0	0	7	0	5	2	0	0	**14**	3	3	369 0	18	
	232 Redding	Redding	101	0	0	0	**101**	0	0	0	0	0	0	3	0	1	0	0	0	**4**	1	1	100 0	0	old
	241 Redding	Redding	20	53	169	0	**242**	0	0	0	0	0	0	0	0	52	4	1	0	**57**	0	0	20 75	94	94
	242 Redding	Redding	3	0	0	0	**3**	0	0	0	0	45	0	9	12	86	46	15	4	**217**	0	0	3 0	0	
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	244 Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	15	0	21	14	34	19	4	**107**	0	0	1 0	0	
	245 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	0	12	35	87	1	**138**	0	0	0 0	0	
	246 Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	0	6	0	15	4	1	1	**27**	0	0	2 0	0	
	247 Redding	Redding	1	0	60	0	**61**	0	0	0	0	43	0	0	0	56	59	29	5	**192**	0	0	1 35	25	25
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	251 Redding	Redding	3	38	22	0	**63**	0	0	0	0	3	10	0	75	160	14	19	8	**289**	1	1	2 9	13	
	252 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	0	10	37	0	0	0	**57**	0	0	0 0	0	
	253 Redding	Redding	0	0	0	0	**0**	0	0	0	0	18	0	0	9	0	0	0	0	**27**	0	0	0 0	0	
	254 Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	547	0	0	0	0	0	0	**549**	0	0	0 0	0	
	255 Redding	Redding	15	4	0	0	**19**	0	0	0	0	1	218	0	17	107	0	11	2	**356**	0	0	15 0	0	
	256 Redding	Redding	79	0	0	0	**79**	0	0	0	0	3	69	0	0	8	0	0	1	**81**	0	0	79 0	0	
	257 Redding	Redding	0	0	245	0	**245**	0	0	962	88	46	115	13	55	78	23	63	46	**527**	0	0	0 241	4	4
	258 Redding	Redding	0	0	0	0	**0**	0	0	0	0	4	0	0	1,056	2	0	27	0	**1,089**	0	0	0 0	0	
	259 Redding	Redding	0	1	5	0	**6**	0	0	0	0	15	249	4	112	114	21	9	2	**526**	0	0	0 0	5	
	260 Redding	Redding	3	9	4	0	**16**	0	0	0	0	2	0	3	316	90	8	11	27	**457**	1	1	2 0	4	
	261 Redding	Redding	13	24	100	0	**137**	0	249	0	20	25	0	45	32	284	38	18	56	**518**	0	0	13 75	25	27
	262 Redding	Redding	50	0	0	0	**50**	0	0	0	0	26	27	33	3	16	19	6	0	**130**	0	0	50 0	0	
	263 Redding	Redding	0	0	0	0	**0**	0	0	0	0	10	0	0	0	330	8	2	1	**351**	0	0	0 0	0	
	264 Redding	Redding	4	1	1	0	**6**	0	0	0	0	0	0	0	9	66	0	3	0	**78**	0	0	4 0	1	
	265 Redding	Redding	3	5	31	0	**39**	0	0	0	0	0	0	0	83	40	9	16	1	**149**	0	0	3 0	31	
	266 Redding	Redding	0	0	0	0	**0**	0	0	0	0	30	0	9	1	22	6	15	0	**83**	0	0	0 0	0	
	267 Redding	Redding	0	15	60	0	**75**	0	0	0	0	33	0	0	0	8	11	78	6	**136**	0	0	0 60	0	0
	268 Redding	Redding	5	8	51	0	**64**	0	0	0	0	6	0	7	0	6	17	7	12	**55**	0	0	5 30	21	21
	269 Redding	Redding	108	38	11	28	**185**	0	0	0	0	0	0	1	0	3	0	1	1	**6**	0	0	108 0	11	
	281 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0 0	0	
	282 Redding	Redding	24	49	34	0	**107**	0	0	0	0	12	6	1	5	83	0	47	11	**165**	10	10	14 0	34	
	283 Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	60	6	6	4	0	**78**	0	0	0 0	0	
	284 Redding	Redding	30	28	60	0	**118**	0	0	0	0	0	57	50	15	13	0	3	2	**140**	0	0	30 50	10	10
	285 Redding	Redding	0	0	53	0	**53**	0	0	0	0	16	28	0	0	22	3	142	30	**241**	0	0	0 0	53	
	286 Redding	Redding	98	10	0	0	**108**	0	0	0	0	0	0	0	5	3	0	0	0	**8**	0	0	98 0	0	
	287 Redding	Redding	0	0	0	0	**0**	1971	0	0	144	0	0	0	0	0	0	0	0	**144**	0	0	0 0	0	
	288 Redding	Redding	35	0	0	0	**35**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	35 0	0	
	289 Redding	Redding	50	79	50	0	**179**	0	0	0	0	2	0	0	1	1	1	53	0	**58**	0	0	50 0	50	
	290 Redding	Redding	106	22	0	0	**128**	0	0	0	0	0	0	1	2	1	0	0	1	**5**	0	0	106 0	0	old
	291 Redding	Redding	6	99	178	0	**283**	0	0	0	0	60	9	8	111	135	5	267	136	**731**	0	28	6 150	28	197
	292 Redding	Redding	32	99	80	0	**211**	0	0	0	0	8	2	1	4	81	0	38	6	**140**	0	5	32 75	5	38
	293 Redding	Redding	0	0	35	0	**35**	0	0	0	0	0	0	0	27	105	0	3	4	**139**	0	0	0 35	0	0
	296 Redding	Redding	66	35	43	0	**144**	0	0	0	0	0	0	0	1	0	6	5	3	**15**	0	0	66 0	43	
	297 Redding	Redding	156	28	0	0	**184**	0	0	0	0	0	0	18	0	11	0	7	2	**38**	0	0	156 0	0	
	298 Redding	Redding	0	0	0	0	**0**	0	0	0	0	12	0	0	0	62	86	9	0	**169**	0	0	0 0	0	
	299 Redding	Redding	1	0	0	0	**1**	0	0	0	0	18	0	0	26	14	37	17	5	**117**	0	0	1 0	0	
	300 Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	125	2	15	253	59	25	0	**479**	0	0	0 0	0	
	301 Redding	Redding	6	9	124	0	**139**	0	0	0	0	4	1	5	19	226	39	30	3	**327**	2	2	4 0	124	
	302 Redding	Redding	16	16	22	0	**54**	0	0	0	0	0	59	15	0	1	5	3	0	**83**	0	0	16 0	22	

303	Redding	Redding	0	0	0	0	**0**	0	0	0	0	20	0	0	0	0	4	1	1	**26**	0	0	0	0	0	0	
304	Redding	Redding	1	3	5	0	**9**	329	0	0	18	4	877	0	5	103	12	8	1	**1,028**	1	1	0	3	2		
305	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	2	47	29	54	19	5	**166**	0	0	0	0	0		
306	Redding	Redding	0	0	0	0	**0**	0	0	0	0	16	0	28	0	26	22	12	12	**116**	0	0	0	0	0		
307	Redding	Redding	0	0	0	0	**0**	0	0	0	0	34	0	3	30	42	38	8	2	**157**	0	0	0	0	0		
321	Redding	Redding	117	0	0	0	**117**	0	0	0	0	0	0	3	0	0	0	0	2	**5**	-2	-2	119	0	0		
322	Redding	Redding	101	68	24	0	**193**	0	0	0	0	72	0	3	21	18	26	21	8	**169**	0	0	101	0	24		
323	Redding	Redding	27	42	32	0	**101**	0	0	0	0	26	0	0	137	29	8	4	2	**206**	0	0	27	0	32		
324	Redding	Redding	168	55	132	0	**355**	50	110	0	16	0	110	0	0	2	0	2	0	**130**	0	0	168	0	132		
325	Redding	Redding	83	104	157	0	**344**	0	0	0	0	0	42	4	37	192	1	7	2	**285**	0	0	83	0	157		
326	Redding	Redding	36	35	0	0	**71**	0	0	0	0	9	10	20	3	18	7	4	1	**72**	0	0	36	0	0		
327	Redding	Redding	0	0	0	0	**0**	0	0	0	0	19	2	4	0	20	51	4	2	**102**	0	0	0	0	0		
328	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	6	631	261	4	17	13	**933**	0	0	0	0	0		
329	Redding	Redding	14	0	8	0	**22**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	14	0	8		
330	Redding	Redding	20	0	0	0	**20**	0	0	0	0	2	0	1	31	4	0	14	0	**52**	0	0	20	0	0		
331	Redding	Redding	51	54	32	0	**137**	0	0	0	0	0	0	0	0	89	0	9	0	**98**	0	0	51	0	32		
332	Redding	Redding	0	0	0	0	**0**	0	0	0	0	4	58	0	128	134	5	32	9	**370**	0	0	0	0	0		
333	Redding	Redding	69	4	0	0	**73**	0	0	0	0	0	0	0	7	2	0	0	1	**10**	0	0	69	0	0		
334	Redding	Redding	27	5	2	0	**34**	0	0	0	0	0	0	0	0	4	0	0	0	**4**	0	0	27	0	2		
335	Redding	Redding	121	10	24	0	**155**	0	0	0	0	0	0	0	1,586	1	2	10	9	**1,608**	0	0	121	0	24		
336	Redding	Redding	3	2	0	0	**5**	0	0	0	0	0	89	1	0	78	5	7	3	**183**	0	0	3	0	0		
337	Redding	Redding	0	1	6	0	**7**	0	0	0	0	0	0	6	0	97	5	7	2	**117**	0	0	0	0	6		
338	Redding	Redding	15	19	16	0	**50**	0	0	0	0	0	17	0	186	0	2	45	42	**292**	0	0	15	0	16		
339	Redding	Redding	8	0	0	0	**8**	0	0	0	0	12	0	33	94	46	34	95	86	**400**	0	0	8	0	0		
340	Redding	Redding	21	28	298	0	**347**	0	0	0	0	1	0	29	171	4	2	9	3	**219**	1	1	20	0	298		
341	Redding	Redding	95	62	37	0	**194**	0	0	0	0	2	0	18	1	6	6	22	7	**62**	1	1	94	0	37		
342	Redding	Redding	334	0	0	0	**334**	0	0	0	0	0	0	2	0	19	0	0	2	**23**	48	48	286	0	0		
343	Redding	Redding	51	11	0	0	**62**	0	0	0	0	0	0	1	0	5	0	0	0	**6**	0	0	51	0	0		
351	Redding	Redding	466	5	60	0	**531**	0	0	0	0	3	0	0	0	0	5	0	0	**8**	250	250	216	60	0		
352	Redding	Redding	221	2	0	0	**223**	0	0	0	0	0	0	0	0	0	0	6	0	**6**	81	81	140	0	0		
353	Redding	Redding	313	0	0	0	**313**	0	0	0	0	2	0	4	41	22	2	0	3	**74**	0	0	313	0	0		
354	Redding	Redding	67	0	51	0	**118**	0	250	0	6	0	0	0	138	0	0	0	0	**144**	0	0	67	0	51		
355	Redding	Redding	0	4	0	0	**4**	0	1931	0	95	0	0	0	0	0	0	0	0	**95**	0	0	0	0	0		
356	Redding	Redding	2	0	47	0	**49**	0	951	0	56	0	40	0	325	71	1	9	0	**502**	0	0	2	0	47		
357	Redding	Redding	36	67	104	1	**208**	1100	0	0	103	26	59	13	29	13	15	14	3	**275**	0	0	36	0	104		
358	Redding	Redding	71	57	58	0	**186**	0	0	0	0	18	350	3	2	11	5	142	2	**533**	0	0	71	0	58		
359	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	11	0	0	0	**11**	0	0	1	0	0		
360	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	130	0	0	1	0	0	0	**131**	0	0	0	0	0		
361	Redding	Redding	12	15	40	0	**67**	0	0	0	0	73	0	0	0	6	2	32	30	**143**	0	0	12	0	40		
362	Redding	Redding	5	8	8	0	**21**	0	0	0	0	0	0	0	0	51	7	7	3	**68**	0	0	5	0	8		
371	Redding	Redding	288	16	35	0	**339**	0	0	0	0	0	0	5	0	6	0	0	1	**12**	110	110	178	0	35		
372	Redding	Redding	560	4	0	9	**573**	0	0	0	0	0	0	3	0	17	14	5	5	**44**	0	0	560	0	0		
373	Redding	Redding	204	0	0	0	**204**	0	0	0	0	0	0	6	0	9	0	0	1	**16**	0	0	204	0	0		
374	Redding	Redding	46	0	0	0	**46**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	46	0	0		
375	Redding	Redding	0	0	0	0	**0**	0	0	0	0	22	0	5	25	43	64	16	4	**179**	0	0	0	0	0		
376	Redding	Redding	74	7	0	0	**81**	0	0	0	0	0	5	0	50	2	0	8	2	**67**	0	0	74	0	0		
377	Redding	Redding	138	0	59	0	**197**	0	0	0	0	0	0	7	31	26	3	9	0	**76**	-1	-1	139	59	0		
378	Redding	Redding	106	14	0	0	**120**	0	0	0	0	0	0	0	0	2	3	4	0	**9**	0	0	106	0	0		
379	Redding	Redding	76	0	0	0	**76**	779	0	0	34	0	0	0	0	1	0	0	1	**36**	0	0	76	0	0		
381	Redding	Redding	394	0	0	0	**394**	0	0	0	0	0	0	0	0	21	0	0	2	**23**	0	0	394	0	0		
382	Redding	Redding	451	0	0	0	**451**	0	0	0	0	0	0	0	1	6	0	0	0	**7**	117	117	334	0	0		
383	Redding	Redding	434	0	0	0	**434**	0	0	0	0	0	0	18	2	4	5	6	0	**35**	115	115	319	0	0		
384	Redding	Redding	154	4	0	0	**158**	0	7	0	2	0	0	6	0	8	2	6	2	**26**	0	0	154	0	0		
385	Redding	Redding	1	0	12	0	**13**	0	0	0	0	20	0	19	0	0	14	7	0	**60**	0	0	1	0	12		
386	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**	0	0	0	0	0		
387	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0		
388	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	2	21	0	0	0	0	0	**23**	0	0	0	0	0		
391	Redding	Redding	173	0	0	0	**173**	0	0	0	0	0	0	0	0	2	0	0	0	**2**	0	0	173	0	0		
392	Redding	Redding	110	0	0	0	**110**	0	0	0	0	0	0	7	0	0	4	6	0	**17**	0	0	110	0	0		
393	Redding	Redding	71	0	0	0	**71**	0	0	0	0	0	0	0	0	3	0	0	0	**3**	0	0	71	0	0		
394	Redding	Redding	259	2	6	0	**267**	0	0	0	0	0	0	1	0	2	0	0	2	**5**	39	39	220	0	6		
395	Redding	Redding	11	0	8	46	**65**	0	0	0	0	2	0	58	8	8	40	23	1	**140**	0	0	11	0	8		
396	Redding	Redding	396	6	53	1	**456**	0	0	0	0	0	0	3	9	10	4	11	1	**38**	75	155	321	0	53		
397	Redding	Redding	21	12	0	0	**33**	0	0	0	0	0	0	0	0	1	5	9	0	**15**	1	1	20	0	0		
398	Redding	Redding	60	0	0	0	**60**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	60	0	0		
399	Redding	Redding	40	0	0	0	**40**	0	0	0	0	0	0	0	0	2	0	0	1	**3**	0	0	40	0	0		
400	Redding	Redding	20	0	10	24	**54**	0	0	0	0	0	0	16	0	0	28	3	0	**47**	0	0	20	0	10		
406	Redding	Redding	156	0	0	0	**156**	0	0	0	0	0	0	0	0	0	0	0	1	**1**	100	141	56	0	0		
407	Redding	Redding	131	0	0	18	**149**	0	0	0	0	0	0	1	0	0	0	0	0	**1**	75	125	56	0	0		
408	Redding	Redding	220	16	8	4	**248**	0	0	0	0	0	0	21	0	4	0	5	5	**35**	200	313	20	0	8		
409	Redding	Redding	128	0	16	7	**151**	0	0	0	0	0	0	3	0	2	2	0	12	**19**	80	152	48	0	16		
410	Redding	Redding	148	8	0	5	**161**	0	0	0	0	0	0	1	0	0	0	14	0	**15**	10	10	138	0	0		
411	Redding	Redding	40	13	6	7	**66**	0	0	0	0	0	0	30	0	1	0	0	14	**45**	8	8	32	0	6		
412	Redding	Redding	14	12	14	2	**42**	148	0	0	9	0	0	0	0	0	0	20	2	**31**	0	0	14	0	14		
413	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	11	0	1	25	10	7	**54**	0	0	1	0	0		
414	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	13	0	1	32	14	8	**68**	0	0	0	0	0		
415	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	70	0	0	0	0	0	**70**	0	0	0	0	0		
416	Redding	Redding	2	4	90	48	**144**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	2	0	90		
417	Redding	Redding	6	12	5	1	**24**	0	0	0	0	0	0	79	0	1	31	30	5	**146**	0	0	6	0	5		
418	Redding	Redding	41	11	18	36	**106**	0	0	0	0	0	0	1	1	3	0	0	0	**5**	0	0	41	0	18		
419	Redding	Redding	424	8	0	2	**434**	271	0	0	15	0	0	5	0	6	0	0	5	**31**	0	0	424	0	0		
420	Redding	Redding	37	8	70	7	**122**	0	0	0	0	0	0	0	0	0	9	1	0	**10**	37	37	0	0	70		
421	Redding	Redding	0	0	0	0	**0**	0	34	0	5	76	0	0	0	20	115	25	0	**241**	0	0	0	0	0		
422	Redding	Redding	11	8	0	24	**43**	0	0	0	0	5	0	44	0	6	12	27	12	**106**	0	0	11	0	0		
426	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0		
427	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	298	0	0	0	0	0	**298**	0	0	1	0	0		

428	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	39	70	0	0	19	15	6	**149**	0	0	2	0	0				
429	Redding	Redding	119	0	0	0	**119**	0	0	0	0	0	0	2	0	9	0	0	0	**11**	3	3	116	0	0				
431	Redding	Redding	69	0	5	0	**74**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	67	67	2	0	5				
432	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0				
433	Redding	Redding	284	0	0	0	**284**	159	83	0	17	0	30	4	0	0	0	0	0	**51**	244	244	40	0	0				
434	Redding	Redding	80	6	0	0	**86**	0	0	0	0	0	0	2	0	0	1	5	3	**11**	19	19	61	0	0				
435	Redding	Redding	101	0	0	0	**101**	0	0	0	0	0	0	0	0	2	0	0	0	**2**	0	0	101	0	0				
436	Redding	Redding	59	0	0	0	**59**	0	0	0	0	0	0	229	3	15	37	86	59	**429**	-2	-2	61	0	0				
437	Redding	Redding	73	0	0	0	**73**	0	0	0	0	0	0	0	0	3	0	0	0	**3**	0	0	73	0	0				
438	Redding	Redding	244	4	2	0	**250**	8	0	0	3	0	0	42	0	13	12	13	20	**103**	21	21	223	0	2				
439	Redding	Redding	723	0	0	0	**723**	0	0	0	0	0	0	7	0	10	0	0	2	**19**	-6	-6	729	0	0				
440	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	1	3	2	**6**	0	0	1	0	0				
441	Redding	Redding	313	8	5	0	**326**	0	0	0	0	0	0	23	0	6	0	2	0	**31**	-5	-5	318	0	5				
451	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	9	670	0	0	0	0	0	**679**	0	0	2	0	0				
461	Redding	Redding	6	0	0	1	**7**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	6	0	0				
462	Redding	Redding	269	0	0	0	**269**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	65	65	204	0	0				
463	Redding	Redding	599	0	0	0	**599**	0	0	0	0	0	0	6	0	2	0	0	0	**8**	231	231	368	0	0				
464	Redding	Redding	495	0	0	0	**495**	0	0	0	0	0	0	0	0	1	0	0	0	**1**	30	30	465	0	0				
465	Redding	Redding	477	2	0	0	**479**	0	0	0	0	0	14	2	36	49	8	32	10	**151**	48	48	429	0	0				
466	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	0	0	200	11	0	0	0	**211**	0	0	2	0	0				
467	Redding	Redding	246	0	0	0	**246**	0	0	0	0	0	0	1	8	17	3	6	1	**36**	0	0	246	0	0				
468	Redding	Redding	62	0	0	0	**62**	0	0	0	0	23	0	0	0	3	0	2	0	**28**	0	0	62	0	0				
469	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0				
470	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0				
471	Redding	Redding	96	3	160	0	**259**	0	0	0	0	0	0	0	0	11	0	0	0	**11**	0	0	96	0	160				
472	Redding	Redding	120	13	16	0	**149**	0	0	0	0	0	0	5	1	2	0	0	0	**8**	0	0	120	0	16	old			
473	Redding	Redding	29	0	35	0	**64**	0	0	0	0	50	0	12	6	22	87	36	2	**215**	0	0	29	35	0	0			
474	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0				
475	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	2	0	**2**	0	0	0	0	0				
476	Redding	Redding	22	0	120	0	**142**	0	0	0	0	11	0	14	6	32	12	34	20	**129**	0	0	22	120	0	0			
477	Redding	Redding	0	0	120	25	**145**	918	0	0	41	0	0	0	0	0	0	0	0	**41**	0	0	0	120	0	0			
478	Redding	Redding	49	0	0	0	**49**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	49	0	0				
481	Redding	Redding	52	0	2	2	**56**	0	0	0	0	0	0	0	0	2	0	0	0	**2**	0	0	52	0	2				
482	Redding	Redding	49	20	10	8	**87**	0	0	0	0	0	0	2	0	3	5	13	1	**24**	0	0	49	0	10				
483	Redding	Redding	34	4	10	20	**68**	633	0	0	36	2	27	1	13	0	3	0	0	**82**	0	0	34	0	10				
484	Redding	Redding	63	16	0	8	**87**	181	164	0	31	0	0	0	0	0	11	2	0	**44**	0	0	63	0	0				
491	Redding	Redding	658	4	32	86	**780**	876	0	0	67	2	0	5	3	12	10	11	FALSE	**110**	171	171	487	0	32				
492	Redding	Redding	215	174	157	66	**612**	0	0	0	0	18	0	17	27	38	20	13	9	**142**	0	0	215	94	63				
493	Redding	Redding	37	12	0	18	**67**	0	0	0	0	0	0	16	4	11	6	4	0	**41**	0	0	37	0	0				
494	Redding	Redding	30	16	27	222	**295**	0	0	0	0	0	0	0	0	66	0	1	0	**67**	0	0	30	0	27				
495	Redding	Redding	4	0	194	239	**437**	0	0	0	0	22	0	14	3	207	20	9	0	**275**	0	0	4	0	194				
496	Redding	Redding	0	0	0	0	**0**	0	0	0	0	50	0	2	26	21	161	21	3	**284**	0	0	0	0	0				
497	Redding	Redding	35	130	133	0	**298**	0	0	0	0	0	0	0	10	4	1	13	8	**36**	-1	-1	36	0	133				
498	Redding	Redding	184	8	40	0	**232**	0	0	0	0	68	0	0	0	12	148	25	5	**258**	161	161	23	0	40				
499	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	18	5	16	11	**51**	0	0	0	0	0				
500	Redding	Redding	3	0	0	12	**15**	0	0	0	0	0	5	7	4	8	9	30	6	**69**	0	0	3	0	0				
501	Redding	Redding	0	0	347	0	**347**	0	0	0	0	0	0	0	0	1	0	0	1	**2**	0	0	0	0	347				
502	Redding	Redding	685	0	335	0	**1,020**	0	0	0	0	18	0	7	62	29	4	16	1	**137**	28	28	657	0	335				
503	Redding	Redding	26	60	172	0	**258**	0	0	0	0	2	0	0	0	5	0	0	1	**8**	-1	-1	27	0	172				
504	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0				
505	Redding	Redding	66	141	0	0	**207**	0	0	0	0	0	0	2	0	12	0	0	2	**16**	10	10	56	0	0				
506	Redding	Redding	0	0	0	28	**28**	0	0	0	0	7	0	10	0	0	0	14	9	**40**	0	0	0	0	0				
511	Redding	Redding	89	0	63	0	**152**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	26	26	63	0	63				
512	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	68	0	0	0	0	0	0	**68**	0	0	0	0	0				
513	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0				
514	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	76	0	**76**	0	0	0	0	0				
515	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	0	0	0	0	82	7	**97**	0	0	0	0	0				
521	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	5	278	0	6	1	1	8	**299**	0	0	0	0	0				
522	Redding	Redding	0	0	0	0	**0**	0	517	0	40	0	276	596	51	47	18	183	77	**1,288**	0	0	0	0	0				
523	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	402	2	104	43	72	49	**672**	0	0	0	0	0				
524	Redding	Redding	86	0	0	0	**86**	0	0	0	0	0	0	1	0	1	0	0	0	**2**	0	0	86	0	0				
525	Redding	Redding	91	40	0	199	**330**	0	0	0	0	0	0	1	0	14	0	0	0	**15**	0	0	91	0	0				
526	Redding	Redding	9	0	0	0	**9**	0	0	0	0	0	39	77	0	6	7	5	4	**138**	9	9	0	0	0				
527	Redding	Redding	72	0	79	55	**206**	0	0	0	0	0	0	0	0	1	0	0	0	**1**	0	0	72	0	79				
528	Redding	Redding	2	0	0	0	**2**	0	0	0	0	2	0	31	0	1	11	122	6	**173**	0	0	2	0	0				
529	Redding	Redding	1	0	0	30	**31**	0	0	0	0	0	0	6	0	0	14	42	26	**88**	0	0	1	0	0				
530	Redding	Redding	132	120	185	0	**437**	0	0	0	0	5	0	43	6	21	219	117	7	**418**	0	0	132	0	185				
532	Redding	Redding	0	0	0	178	**178**	0	0	0	0	1	0	0	0	7	0	48	1	**57**	0	0	0	0	0				
541	Redding	Redding	854	0	0	3	**857**	0	0	0	0	0	0	0	0	1	0	0	0	**1**	127	127	727	0	0				
542	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	254	0	**254**	0	0	1	0	0				
543	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	309	0	**309**	0	0	0	0	0				
544	Redding	Redding	89	0	170	3	**262**	0	0	0	0	0	0	3	0	0	9	61	17	**90**	80	166	9	0	170				
545	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	202	739	0	**941**	0	0	0	0	0				
546	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	11	9	8	**28**	0	0	0	0	0				
547	Redding	Redding	2	2	0	0	**4**	0	0	0	0	2	0	0	0	61	4	666	0	**733**	0	0	2	0	0				
548	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	282	0	**282**	0	0	0	0	0				
549	Redding	Redding	802	0	0	0	**802**	0	0	0	0	0	0	0	0	0	0	71	0	**71**	605	605	197	0	0				
550	Redding	Redding	153	0	0	0	**153**	0	0	0	0	0	0	1	0	0	0	0	0	**1**	0	93	153	0	0				
551	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	22	0	0	38	8	0	**68**	0	0	0	0	0				
552	Redding	Redding	204	0	0	0	**204**	0	0	0	0	0	0	1	0	4	0	0	2	**7**	0	115	204	0	0				
553	Redding	Redding	80	0	0	0	**80**	0	0	0	0	0	0	1	0	1	0	0	0	**2**	0	0	80	0	0				
554	Redding	Redding	297	0	0	0	**297**	0	0	0	0	0	0	5	0	7	0	0	3	**15**	52	52	245	0	0				
555	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	14	33	0	**47**	0	0	0	0	0				
556	Redding	Redding	375	16	0	1	**392**	0	0	0	0	0	0	6	1	13	19	141	124	**304**	70	70	305	0	0				
557	Redding	Redding	633	76	54	0	**763**	0	0	0	0	0	0	5	61	37	0	4	0	**107**	9	9	624	0	54				
558	Redding	Redding	66	0	0	0	**66**	0	0	0	24	0	0	0	0	0	0	0	0	**24**	-2	-2	68	0	0				

559	Redding	Redding	83	6	0	6	**95**	0	0	0	0	0	0	0	0	40	0	0	3	**43**	0	0	83	0	0
561	Redding	Redding	186	0	0	9	**195**	0	0	0	0	3	0	0	0	3	0	0	33	**39**	93	93	93	0	0
571	Redding	Redding	403	0	0	0	**403**	0	0	0	0	0	0	0	3	11	0	0	0	**14**	50	106	353	0	0
572	Redding	Redding	239	0	0	36	**275**	261	0	0	43	1	0	2	35	2	0	0	6	**89**	50	115	189	0	0
573	Redding	Redding	106	0	32	1	**139**	0	0	0	0	9	0	0	0	1	2	74	1	**87**	0	0	106	0	32
574	Redding	Redding	160	0	8	1	**169**	0	0	0	0	0	0	2	0	3	3	11	1	**20**	9	9	151	0	8
575	Redding	Redding	202	0	36	1	**239**	0	0	343	79	0	0	0	102	44	1	0	0	**226**	200	569	2	0	36
576	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0
577	Redding	Redding	184	0	0	0	**184**	0	0	0	0	0	0	4	0	6	0	0	0	**10**	0	0	184	0	0
578	Redding	Redding	292	0	0	0	**292**	0	468	0	25	0	0	0	0	2	0	0	0	**27**	150	420	142	0	0
579	Redding	Redding	354	0	0	0	**354**	0	0	0	0	0	0	0	0	1	5	1	0	**7**	59	59	295	0	0
581	Redding	Redding	42	0	0	0	**42**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	42	42	0	0	0
582	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	5	20	9	0	**35**	0	0	0	0	0
583	Redding	Redding	160	50	0	0	**210**	205	0	0	30	0	0	0	5	5	0	0	0	**40**	0	0	160	0	0
584	Redding	Redding	51	24	274	0	**349**	0	0	0	0	0	0	10	4	31	4	6	7	**62**	50	50	1	0	274
585	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0
586	Redding	Redding	385	5	0	0	**390**	1054	0	0	51	0	0	0	0	9	0	0	1	**61**	0	0	385	0	0
587	Redding	Redding	208	3	0	0	**211**	0	0	0	0	0	0	1	0	3	0	0	1	**5**	0	0	208	0	0
588	Redding	Redding	321	0	0	0	**321**	0	0	0	0	0	0	0	0	8	0	0	3	**11**	0	0	321	0	0
589	Redding	Redding	24	4	0	8	**36**	0	0	0	0	0	0	0	0	0	1	9	0	**10**	0	0	24	0	0
590	Redding	Redding	75	0	0	5	**80**	0	300	0	15	0	0	10	0	0	0	12	0	**37**	23	23	52	0	0
601	Redding	Redding	0	0	0	0	**0**	0	0	0	0	6	0	0	0	48	173	22	0	**249**	0	0	0	0	0
602	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	3	7	204	20	0	**234**	0	0	0	0	0
603	Redding	Redding	0	0	0	0	**0**	0	0	0	0	19	0	5	24	18	142	38	9	**255**	0	0	0	0	0
604	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	5	4	58	35	190	8	**303**	0	0	0	0	0
605	Redding	Redding	0	52	120	0	**172**	0	0	0	0	0	0	0	0	1	0	0	1	**2**	0	0	0	0	120
606	Redding	Redding	0	0	0	0	**0**	0	0	0	0	161	0	9	10	98	631	35	0	**944**	0	0	0	0	0
607	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	189	1	0	**190**	0	0	0	0	0
608	Redding	Redding	0	0	0	0	**0**	0	0	0	0	15	0	0	0	0	69	8	0	**92**	0	0	0	0	0
609	Redding	Redding	0	0	0	0	**0**	0	0	0	0	11	5	0	4	11	8	59	0	**98**	0	0	0	0	0
610	Redding	Redding	0	182	283	0	**465**	0	0	0	0	0	0	0	0	2	0	17	1	**20**	0	0	0	0	283
611	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	91	0	0	**91**	0	0	0	0	0
612	Redding	Redding	0	0	0	0	**0**	0	0	0	0	195	0	190	21	23	145	41	15	**630**	0	0	0	0	0
613	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	95	3	0	**98**	0	0	0	0	0
614	Redding	Redding	0	0	0	0	**0**	0	0	0	0	14	0	0	15	0	91	5	0	**125**	0	0	0	0	0
621	Redding	Redding	165	0	0	3	**168**	0	0	0	0	0	0	0	0	3	0	0	8	**11**	0	0	165	0	0
622	Redding	Redding	276	0	0	1	**277**	0	0	0	0	0	0	4	13	6	0	5	2	**30**	30	30	246	0	0
623	Redding	Redding	451	74	0	2	**527**	0	0	0	0	1	0	16	1	23	9	21	8	**79**	0	0	451	0	0
624	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	287	0	**287**	0	0	0	0	0
625	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	68	0	0	0	0	0	0	**68**	0	0	0	0	0
626	Redding	Redding	18	0	0	0	**18**	0	0	0	0	20	0	100	0	68	46	93	35	**362**	0	0	18	0	0
627	Redding	Redding	29	172	44	0	**245**	0	0	0	0	0	0	9	0	3	5	43	36	**96**	0	0	29	0	44
628	Redding	Redding	232	0	0	0	**232**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	232	0	0
629	Redding	Redding	8	0	0	0	**8**	0	0	0	0	0	0	2	0	1	0	13	1	**17**	0	0	8	0	0
631	Redding	Redding	0	64	0	0	**64**	0	0	0	0	50	0	20	6	52	74	43	13	**258**	0	0	0	0	0
632	Redding	Redding	0	0	0	0	**0**	0	0	0	0	209	0	0	10	26	32	7	2	**286**	0	0	0	0	0
633	Redding	Redding	0	0	0	0	**0**	0	0	0	0	99	0	0	0	0	61	6	0	**166**	0	0	0	0	0
634	Redding	Redding	0	4	0	0	**4**	0	0	0	0	0	0	0	3	1	457	30	0	**491**	0	0	0	0	0
635	Redding	Redding	6	4	37	1	**48**	14	0	0	3	0	0	0	12	0	0	5	0	**20**	0	0	6	0	37
636	Redding	Redding	5	8	13	0	**26**	0	0	0	0	2	0	0	0	4	0	25	5	**36**	0	0	5	0	13
637	Redding	Redding	6	18	394	0	**418**	0	0	0	0	0	0	1	0	22	6	2	0	**31**	0	0	6	0	394
638	Redding	Redding	5	3	0	3	**11**	0	0	0	0	0	0	5	15	0	0	0	0	**20**	0	0	5	0	0
639	Redding	Redding	67	0	0	0	**67**	0	0	0	0	0	0	1	0	0	0	0	1	**2**	0	0	67	0	0
640	Redding	Redding	18	0	0	0	**18**	0	0	0	0	0	0	22	0	0	2	92	73	**189**	0	0	18	0	0
641	Redding	Redding	26	106	50	0	**182**	0	0	0	0	0	0	0	0	7	0	5	0	**12**	0	0	26	0	50
642	Redding	Redding	0	0	0	0	**0**	0	0	0	0	45	165	26	21	593	0	47	2	**899**	0	0	0	0	0
643	Redding	Redding	0	6	0	0	**6**	0	0	0	0	71	57	35	37	191	41	48	4	**484**	0	0	0	0	0
644	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	3	90	3	4	3	**103**	0	0	0	0	0
646	Redding	Redding	0	0	0	0	**0**	0	0	0	0	142	0	0	0	0	5	80	0	**227**	0	0	0	0	0
647	Redding	Redding	0	0	0	0	**0**	0	0	0	0	110	0	0	9	42	88	36	5	**290**	0	0	0	0	0
648	Redding	Redding	0	0	0	0	**0**	0	0	0	0	80	0	5	0	32	82	176	7	**382**	0	0	0	0	0
649	Redding	Redding	0	0	0	0	**0**	0	0	0	0	79	0	0	39	25	41	13	0	**197**	0	0	0	0	0
650	Redding	Redding	0	0	0	0	**0**	0	0	0	0	89	0	0	0	29	5	48	0	**171**	0	0	0	0	0
651	Redding	Redding	377	19	13	1	**410**	0	0	0	0	5	74	0	9	338	69	11	10	**516**	0	0	377	0	13
652	Redding	Redding	4	42	0	0	**46**	0	0	0	0	0	0	19	15	86	21	13	2	**156**	0	0	4	0	0
653	Redding	Redding	0	4	0	0	**4**	0	0	0	0	50	0	0	50	0	30	7	1	**138**	0	0	0	0	0
654	Redding	Redding	0	0	0	0	**0**	0	0	0	0	20	0	1	5	68	4	35	8	**141**	0	0	0	0	0
655	Redding	Redding	0	0	0	0	**0**	0	0	0	0	91	0	7	0	2	26	59	19	**204**	0	0	0	0	0
656	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	9	21	3	0	0	0	**43**	0	0	0	0	0
657	Redding	Redding	0	0	0	0	**0**	0	0	0	0	79	0	6	0	112	31	58	8	**294**	0	0	0	0	0
658	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	3	71	0	57	24	43	18	**216**	0	0	0	0	0
659	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	0	37	0	0	0	**39**	0	0	0	0	0
660	Redding	Redding	0	0	0	0	**0**	0	0	361	106	0	0	4	3	324	52	59	0	**548**	0	0	0	0	0
661	Redding	Redding	0	0	0	0	**0**	0	69	0	8	2	5	162	0	51	117	42	41	**428**	0	0	0	0	0
662	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	10	17	0	4	0	**34**	0	0	0	0	0
663	Redding	Redding	147	0	0	0	**147**	754	0	0	39	0	0	2	12	4	0	0	1	**58**	0	0	147	0	0
664	Redding	Redding	0	0	0	0	**0**	0	0	0	0	10	305	28	37	184	34	103	24	**725**	0	0	0	0	0
665	Redding	Redding	0	0	0	0	**0**	0	0	0	0	41	0	0	3	8	382	10	0	**444**	0	0	0	0	0
666	Redding	Redding	113	4	0	0	**117**	0	178	0	54	0	0	2	7	20	11	9	1	**104**	-3	-3	116	0	0
667	Redding	Redding	108	20	0	0	**128**	0	0	0	0	0	0	0	15	0	0	3	2	**20**	0	0	108	0	0
668	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	25	0	39	32	31	18	**145**	0	0	0	0	0
669	Redding	Redding	56	0	0	30	**86**	0	0	0	0	0	0	0	13	0	0	23	4	**40**	32	32	24	0	0
670	Redding	Redding	49	0	50	0	**99**	0	0	0	0	0	0	0	78	3	0	0	0	**81**	19	19	30	0	50
681	Redding	Redding	0	0	0	0	**0**	0	0	0	0	4	0	4	129	1	0	11	9	**158**	0	0	0	0	0
682	Redding	Redding	0	0	0	0	**0**	0	0	0	0	89	20	3	128	102	101	52	13	**508**	0	0	0	0	0
683	Redding	Redding	84	8	7	0	**99**	0	0	0	0	0	0	5	0	1	0	7	8	**21**	0	0	84	0	7

684	Redding	Redding	19	0	99	0	**118**	0	0	0	0	4	0	0	155	427	21	11	0	**618**	0	0	19	0	99		
685	Redding	Redding	0	0	0	0	**0**	0	0	0	0	11	0	0	5	8	114	41	13	**192**	0	0	0	0	0		
686	Redding	Redding	11	4	63	0	**78**	0	0	0	0	5	0	0	0	154	0	0	0	**159**	0	0	11	0	63		
687	Redding	Redding	71	8	12	25	**116**	0	0	0	0	0	0	0	0	1	0	0	0	**1**	0	0	71	0	12		
688	Redding	Redding	5	0	0	0	**5**	0	0	0	0	84	10	8	11	322	96	49	10	**590**	0	0	5	0	0		0
689	Redding	Redding	0	0	120	0	**120**	0	0	0	0	1	0	3	0	0	42	20	0	**66**	0	0	0	120	0		34
690	Redding	Redding	17	47	214	0	**278**	0	0	0	0	0	0	2	20	103	15	30	27	**197**	0	0	17	180	34		
691	Redding	Redding	6	0	0	0	**6**	0	0	0	0	3	3	1	26	122	70	27	10	**262**	0	0	6	0	0		
692	Redding	Redding	27	4	0	0	**31**	0	0	0	0	16	16	33	12	81	57	76	30	**321**	0	0	27	0	0		
693	Redding	Redding	2	8	152	0	**162**	0	0	0	0	0	0	0	0	1	0	0	0	**1**	0	0	2	0	152		
694	Redding	Redding	404	74	232	2	**712**	0	523	0	68	0	0	5	36	38	0	0	16	**163**	0	0	404	0	232		
695	Redding	Redding	41	4	20	0	**65**	0	0	0	0	0	0	0	0	13	0	0	2	**15**	0	0	41	0	20		
696	Redding	Redding	29	34	0	0	**63**	0	0	0	0	0	0	0	0	3	0	0	0	**3**	0	0	29	0	0		
697	Redding	Redding	32	0	0	0	**32**	1681	0	0	141	0	0	0	0	6	5	24	0	**176**	0	0	32	0	0		
698	Redding	Redding	187	0	0	1	**188**	0	0	0	0	0	0	0	71	4	149	13	1	**238**	15	15	172	0	0		
699	Redding	Redding	6	0	0	0	**6**	0	0	0	0	0	0	0	0	0	0	75	0	**75**	0	0	6	0	0		
701	Redding	Redding	1	16	5	0	**22**	0	0	0	0	184	0	0	0	0	20	15	0	**219**	0	0	1	0	5		
702	Redding	Redding	0	0	0	0	**0**	0	0	0	0	56	0	0	0	9	53	15	0	**133**	0	0	0	0	0		
703	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	2	3	6	146	3	2	**170**	0	0	0	0	0		
704	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	6	**10**	0	0	0	0	0		
705	Redding	Redding	2	0	0	0	**2**	0	0	0	0	18	0	7	0	15	76	9	0	**125**	0	0	2	0	0		
706	Redding	Redding	47	0	0	0	**47**	743	0	0	45	0	0	0	0	0	0	0	2	**47**	0	0	47	0	0		
707	Redding	Redding	5	0	0	0	**5**	0	0	0	0	52	3	1	17	24	9	19	8	**133**	0	0	5	0	0		
708	Redding	Redding	4	0	0	0	**4**	0	0	0	0	12	5	0	13	6	23	23	5	**87**	0	0	4	0	0		
709	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	7	8	4	0	7	0	**26**	0	0	0	0	0		
710	Redding	Redding	6	12	45	0	**63**	0	0	0	0	31	16	21	1	49	21	1	2	**142**	0	0	6	45	0		0
711	Redding	Redding	1	0	0	150	**151**	0	0	0	0	23	0	49	9	38	35	117	102	**373**	0	0	1	0	0		
712	Redding	Redding	270	265	191	1	**727**	0	0	0	0	25	0	59	1	60	67	75	50	**337**	0	0	270	60	131		131
713	Redding	Redding	118	44	0	0	**162**	0	0	0	0	0	0	6	0	3	21	12	6	**48**	-2	-2	120	0	0		
714	Redding	Redding	212	12	9	0	**233**	531	0	0	23	0	0	1	0	8	0	2	5	**39**	0	0	212	0	9		
715	Redding	Redding	259	10	42	0	**311**	0	0	0	0	0	0	2	0	6	0	21	7	**36**	0	0	259	0	42		
716	Redding	Redding	188	0	0	0	**188**	0	0	0	0	0	0	9	3	4	0	0	2	**18**	0	0	188	0	0		
717	Redding	Redding	150	19	106	0	**275**	0	0	62	57	0	0	1	22	2	0	0	0	**82**	0	0	150	0	106		
718	Redding	Redding	26	0	24	0	**50**	0	79	0	54	10	0	21	0	27	32	55	13	**212**	0	0	26	0	24		
721	Redding	Redding	50	4	0	0	**54**	554	0	0	30	0	0	0	4	4	0	5	4	**47**	0	0	50	0	0		
722	Redding	Redding	5	8	0	0	**13**	0	0	0	0	0	0	4	291	60	3	5	4	**367**	0	0	5	0	0		
723	Redding	Redding	60	20	24	0	**104**	0	0	0	0	0	0	1	41	0	8	6	1	**57**	0	0	60	0	24		
724	Redding	Redding	3	0	50	0	**53**	0	0	0	0	0	0	0	0	8	4	16	10	**38**	0	0	3	50	0		0
725	Redding	Redding	26	119	147	0	**292**	0	0	0	0	0	0	0	17	7	13	3	0	**40**	0	0	26	0	147		
726	Redding	Redding	0	0	0	0	**0**	1000	1461	0	169	0	0	0	0	0	0	0	0	**169**	0	0	0	0	0		
727	Redding	Redding	185	3	82	22	**292**	0	0	0	0	0	0	14	13	38	36	22	9	**132**	0	0	185	0	82		
728	Redding	Redding	1	104	8	0	**113**	0	0	0	0	22	0	9	40	63	19	28	21	**202**	0	0	1	0	8		
729	Redding	Redding	0	40	0	0	**40**	0	0	0	0	0	0	0	4	12	0	0	2	**18**	0	0	0	0	0		
730	Redding	Redding	2	0	157	0	**159**	0	0	0	0	0	0	5	2	11	1	10	0	**29**	0	0	2	0	157		
731	Redding	Redding	552	67	343	1	**963**	0	199	0	31	0	0	3	267	20	31	31	4	**387**	37	37	515	0	343		
732	Redding	Redding	162	100	110	2	**374**	0	0	0	0	17	0	3	3	32	57	59	8	**179**	-1	-1	163	0	110		
733	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	5	0	**7**	0	0	0	0	0		
741	Redding	Redding	17	0	0	1	**18**	0	0	0	0	2	0	0	0	8	4	0	0	**14**	0	0	17	0	0		
751	Redding	Redding	326	26	0	0	**352**	0	0	0	0	0	0	6	1	6	0	0	3	**16**	0	0	326	0	0		
752	Redding	Redding	208	46	0	0	**254**	0	0	0	0	0	0	0	1	6	0	0	1	**8**	0	0	208	0	0		
753	Redding	Redding	106	0	0	0	**106**	0	0	0	0	0	0	1	0	0	0	0	0	**1**	0	0	106	0	0		
754	Redding	Redding	69	16	0	0	**85**	0	0	0	0	0	0	0	0	50	3	11	3	**67**	0	0	69	0	0		
755	Redding	Redding	293	10	0	0	**303**	0	0	0	0	0	0	0	5	5	0	0	2	**12**	0	0	293	0	0		
756	Redding	Redding	702	6	6	1	**715**	330	0	0	18	11	0	16	9	22	50	50	10	**186**	0	0	702	0	6		
757	Redding	Redding	139	4	0	0	**143**	0	0	0	0	3	0	14	0	2	41	15	10	**85**	0	0	139	0	0		
758	Redding	Redding	390	0	19	0	**409**	0	0	0	0	3	0	0	0	2	0	138	4	**147**	70	70	320	0	19		
759	Redding	Redding	37	0	0	0	**37**	0	0	0	0	0	0	0	0	2	0	0	5	**7**	0	0	37	0	0		
760	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	226	0	0	0	**226**	0	0	0	0	0		
761	Redding	Redding	4	2	0	4	**10**	0	0	0	0	0	0	0	0	1	0	0	168	**169**	0	0	4	0	0		
766	Redding	Redding	81	0	0	0	**81**	0	0	0	0	1	0	0	3	25	2	29	1	**61**	0	0	81	0	0		
767	Redding	Redding	352	0	0	0	**352**	0	0	0	0	0	0	4	0	14	0	0	9	**27**	0	0	352	0	0		
768	Redding	Redding	317	0	0	0	**317**	0	0	0	0	0	0	7	2	10	0	0	2	**21**	0	0	317	0	0		
769	Redding	Redding	562	0	0	1	**563**	0	0	0	0	0	0	20	0	15	0	0	0	**35**	0	0	562	0	0		
770	Redding	Redding	55	0	0	0	**55**	0	0	0	0	0	0	5	0	0	5	14	2	**26**	39	39	16	0	0		
781	Redding	Redding	55	0	0	0	**55**	0	0	0	0	0	0	0	0	1	0	0	0	**1**	0	0	55	0	0		
782	Redding	Redding	1,103	0	0	0	**1,103**	0	0	0	0	0	0	0	10	3	0	0	0	**13**	486	486	617	0	0		
783	Redding	Redding	436	0	0	0	**436**	500	0	0	47	0	0	8	0	1	0	0	1	**57**	256	256	180	0	0		
784	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	0	4	**7**	0	0	0	0	0		
785	Redding	Redding	2	0	0	0	**2**	0	0	0	0	4	8	14	0	103	5	43	0	**177**	0	0	2	0	0		
786	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	37	0	400	0	0	33	**470**	0	0	0	0	0		
787	Redding	Redding	102	0	0	0	**102**	0	0	0	0	0	0	53	0	157	0	0	0	**210**	0	0	102	0	0		
788	Redding	Redding	0	0	0	0	**0**	0	0	0	0	14	0	46	0	16	5	35	16	**132**	0	0	0	0	0		
791	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	1	**1**	0	0	1	0	0		
792	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	297	344	0	71	7	308	51	**1,078**	0	0	2	0	0		
793	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0		
794	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1,080	0	0	0	0	0	**1,080**	0	0	0	0	0		
795	Redding	Redding	0	0	0	148	**148**	0	0	0	0	0	0	150	0	13	41	30	14	**248**	0	0	0	0	0		
796	Redding	Redding	35	0	0	6	**41**	0	0	0	0	0	0	5	0	52	13	26	12	**108**	0	0	35	0	0		
951	Shasta County	Redding Sphere	37	0	0	9	**46**	0	0	0	0	0	0	2	0	0	0	0	1	**3**	16	16	21	0	0		
952	Shasta County	Redding Sphere	107	0	0	6	**113**	0	0	0	0	0	0	2	0	8	1	2	5	**18**	0	0	107	0	0		
953	Shasta County	Redding Sphere	93	10	0	15	**118**	0	0	0	0	0	0	0	0	7	0	4	5	**16**	0	0	93	0	0		
954	Shasta County	Redding Sphere	30	4	0	51	**85**	0	0	0	0	0	0	130	0	6	17	28	2	**183**	0	0	30	0	0		
955	Shasta County	Redding Sphere	31	16	0	77	**124**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	31	0	0		
956	Shasta County	Redding Sphere	41	2	0	10	**53**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	41	0	0		
957	Shasta County	Redding Sphere	15	0	0	2	**17**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	15	0	0		
958	Shasta County	Redding Sphere	26	0	0	6	**32**	0	0	0	0	0	0	1	0	0	0	0	0	**1**	0	0	26	0	0		

959	Shasta County	Redding Sphere	192	0	0	3	**195**	0	0	0	0	0	0	0	0	1	0	0	0	**1**	-1	-1		193	0		0	
961	Shasta County	Redding Sphere	25	4	0	21	**50**	0	0	0	0	0	3	0	0	1	0	0	0	**4**	0	0		25	0		0	
962	Shasta County	Redding Sphere	18	2	9	13	**42**	0	0	0	0	0	0	3	0	3	1	2	0	**9**	0	0		18	0		9	
963	Shasta County	Redding Sphere	30	2	0	12	**44**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0		30	0		0	
964	Shasta County	Redding Sphere	27	0	97	11	**135**	0	0	0	0	0	0	0	0	41	0	0	0	**41**	3	3		24	0		97	
965	Shasta County	Redding Sphere	29	0	0	17	**46**	0	0	0	0	0	0	1	0	0	0	0	0	**1**	4	4		25	0		0	
966	Shasta County	Redding Sphere	20	0	0	34	**54**	0	0	0	0	0	0	20	0	0	7	8	7	**42**	0	0		20	0		0	
971	Shasta County	Redding Sphere	63	0	0	4	**67**	0	0	0	0	0	0	0	0	0	0	0	1	**1**	-2	-2		65	0		0	
972	Shasta County	Redding Sphere	31	0	0	0	**31**	0	0	0	0	0	0	2	0	0	0	0	2	**4**	0	0		31	0		0	
973	Shasta County	Redding Sphere	12	0	0	0	**12**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0		12	0		0	
974	Shasta County	Redding Sphere	33	0	360	1	**394**	0	0	0	0	50	19	6	10	0	50	18	5	**158**	0	0		33	360		0	
975	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	16230	1,268	0	0	0	0	7	0	0	0	**1,275**	0	0		0	0		0	
981	Shasta County	Redding Sphere	81	0	0	8	**89**	0	0	0	0	0	0	7	0	7	0	0	1	**15**	0	0		81	0		0	
982	Shasta County	Redding Sphere	12	0	0	1	**13**	0	0	0	0	0	0	5	0	0	0	0	0	**5**	0	0		12	0		0	
983	Shasta County	Redding Sphere	55	0	0	6	**61**	0	0	0	0	0	0	0	0	18	0	0	0	**18**	0	0		55	0		0	
984	Shasta County	Redding Sphere	302	4	0	52	**358**	0	0	0	0	0	0	1	0	9	0	0	4	**14**	0	0		302	0		0	
985	Shasta County	Redding Sphere	116	4	12	41	**173**	0	0	0	0	0	0	28	0	4	2	11	5	**50**	7	7		109	0		12	
991	Shasta County	Redding Sphere	27	0	0	2	**29**	0	0	0	0	0	0	1	0	1	0	0	0	**2**	0	0		27	0		0	
992	Shasta County	Redding Sphere	28	0	0	6	**34**	0	0	0	0	0	0	0	0	0	0	0	4	**4**	0	0		28	0		0	
996	Shasta County	Redding Sphere	45	0	0	2	**47**	0	0	0	0	0	0	5	0	1	2	11	9	**28**	0	0		45	0		0	
997	Shasta County	Redding Sphere	16	0	0	0	**16**	0	0	0	0	0	0	0	0	0	2	0	0	**2**	0	0		16	0		0	
998	Shasta County	Redding Sphere	13	0	0	2	**15**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0		13	0		0	
999	Shasta County	Redding Sphere	22	4	0	5	**31**	1129	0	0	84	0	0	0	0	0	0	0	0	**84**	0	0		22	0		0	
1000	Shasta County	Redding Sphere	15	0	0	9	**24**	0	0	0	0	0	310	58	0	2	3	11	2	**386**	0	0		15	0		0	
1001	Shasta County	Redding Sphere	12	0	0	0	**12**	0	0	0	0	0	0	132	0	1	6	21	17	**177**	0	0		12	0		0	
1002	Shasta County	Redding Sphere	67	12	0	57	**136**	0	0	0	0	0	0	1	11	1	2	0	1	**16**	0	0		67	0		0	
1003	Shasta County	Redding Sphere	40	0	12	1	**53**	0	0	0	0	10	0	61	0	38	16	50	39	**214**	19	19		21	0		12	
1006	Shasta County	Redding Sphere	2	0	0	0	**2**	0	0	0	0	0	0	0	0	1	6	11	0	**18**	0	0		2	0		0	
1007	Shasta County	Redding Sphere	19	0	0	4	**23**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0		19	0		0	
1011	Shasta County	Redding Sphere	86	8	0	15	**109**	0	0	0	0	0	0	1	0	0	0	1	0	**2**	0	0		86	0		0	
1012	Shasta County	Redding Sphere	81	0	0	0	**81**	0	0	0	0	0	0	3	0	7	0	0	0	**10**	7	7		74	0		0	
1013	Shasta County	Redding Sphere	93	0	0	4	**97**	0	0	0	0	0	0	15	0	2	0	0	0	**17**	29	29		64	0		0	
1014	Shasta County	Redding Sphere	13	0	0	3	**16**	0	0	0	0	0	0	14	0	59	0	1	0	**74**	0	0		13	0		0	
1015	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	1	0	**1**	0	0		0	0		0	
1016	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0		0	0		0	
1017	Shasta County	Redding Sphere	21	2	0	2	**25**	0	0	0	0	0	0	24	60	0	0	4	9	**97**	0	0		21	0		0	
1018	Shasta County	Redding Sphere	11	4	0	0	**15**	0	0	0	0	0	0	0	0	0	0	400	7	**407**	0	0		11	0		0	
1019	Shasta County	Redding Sphere	9	0	0	0	**9**	0	0	0	0	0	0	0	0	2	0	0	0	**2**	6	6		3	0		0	
1021	Shasta County	Redding Sphere	57	0	0	0	**57**	0	0	0	0	0	0	1	0	2	0	1	0	**4**	0	0		57	0		0	
1022	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0		0	0		0	
1026	Shasta County	Redding Sphere	39	0	0	4	**43**	0	0	0	0	0	0	1	0	3	0	0	0	**4**	0	0		39	0		0	
1027	Shasta County	Redding Sphere	89	2	0	3	**94**	0	0	0	0	14	0	146	12	76	53	68	51	**420**	0	0		89	0		0	
1028	Shasta County	Redding Sphere	5	0	0	0	**5**	0	0	0	0	0	0	16	0	0	3	0	0	**19**	0	0		5	0		0	
1029	Shasta County	Redding Sphere	3	0	0	0	**3**	0	0	0	0	0	0	16	0	112	0	12	49	**189**	0	0		3	0		0	
1030	Shasta County	Redding Sphere	43	0	0	0	**43**	0	0	0	0	0	0	38	0	23	7	36	8	**112**	0	0		43	0		0	
1031	Shasta County	Redding Sphere	393	0	0	25	**418**	0	0	0	0	68	0	59	0	8	2	7	1	**145**	112	263		281	0		0	
1032	Shasta County	Redding Sphere	125	1	0	32	**158**	0	0	0	0	0	0	7	0	5	0	0	14	**26**	0	0		125	0		0	
1033	Shasta County	Redding Sphere	267	0	0	6	**273**	0	0	0	0	0	0	1	0	6	0	17	2	**26**	150	309		117	0		0	
1034	Shasta County	Redding Sphere	13	0	0	0	**13**	0	0	0	0	0	0	298	0	202	0	0	0	**500**	0	0		13	0		0	
1036	Shasta County	Redding Sphere	19	4	0	12	**35**	0	0	0	0	0	0	6	0	0	0	0	0	**6**	0	0		19	0		0	
1037	Shasta County	Redding Sphere	311	0	0	0	**311**	0	0	0	0	0	0	1	5	13	0	0	4	**23**	0	0		311	0		0	
1038	Shasta County	Redding Sphere	45	8	0	2	**55**	0	0	0	0	2	0	4	0	2	3	6	4	**21**	0	0		45	0		0	
1041	Shasta County	Redding Sphere	16	0	0	164	**180**	0	0	0	0	0	0	8	24	10	9	15	3	**69**	0	0		16	0		0	
1042	Shasta County	Redding Sphere	115	32	0	156	**303**	0	0	0	0	0	0	61	0	0	4	17	38	**120**	0	0		115	0		0	
1043	Shasta County	Redding Sphere	35	16	0	36	**87**	0	0	0	0	0	0	47	0	2	28	34	4	**115**	0	0		35	0		0	
1044	Shasta County	Redding Sphere	101	0	0	20	**121**	0	0	0	0	2	20	194	0	45	155	22	11	**449**	0	0		101	0		0	
		Redding	*35,543*	*4,669*	*9,505*	*1,961*	*51,678*	*15,664*	*7,573*	*1,728*	*2,043*	*3,738*	*5,953*	*7,380*	*8,585*	*11,590*	*8,033*	*9,807*	*2,583*	*59,712*		*5,217*	*6,660*	*30,326*	*1,913*			
		R. Sphere	*3,722*	*141*	*490*	*972*	*5,325*	*1,129*	*0*	*16,230*	*1,352*	*146*	*352*	*1,427*	*122*	*736*	*379*	*819*	*315*	*5,648*		*350*	*660*	*3,372*				
Total 2040 (Redding + Redding Sphere)			39,265	4,810	9,995	2,933	**57,003**	16,793	7,573	17,958	3,395	3,884	6,305	8,807	8,707	12,326	8,412	10,626	2,898	**65,360**								

			Dwelling Units					School Enrollment (students)			Employment (jobs)									
			Single-family	Multi-family (2-4 units)	Multi-family (5+ units)	Mobile homes	Total dwelling units	Grade school	High school	University	Education	Food	Government	Industrial	Medical	Office	Retail	Service	Other	Total employment
TAZ	**JURIS**	**Community**	SFDU	MF2_4DU	MF5_DU	MHDU	**TOT_DU**	Stugrd	Stuhgh	Stuuni	Empedu	Empfood	Empgov	Empind	Empmed	Empofc	Empret	Empsvc	Empoth	**Emptot**
201	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	84	0	0	0	0	0	0	**84**
202	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	15	0	0	0	0	0	0	**15**
203	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	75	0	0	**75**
204	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	9	1	0	**10**
205	Redding	Redding	0	0	0	0	**0**	0	0	0	0	34	0	0	0	0	0	9	0	**43**
206	Redding	Redding	17	14	0	0	**31**	0	0	0	0	0	20	24	2	7	3	9	0	**65**
207	Redding	Redding	6	0	0	0	**6**	0	0	0	0	24	0	16	0	0	36	9	3	**88**
208	Redding	Redding	146	102	73	0	**321**	0	0	0	0	0	0	40	0	5	4	0	1	**50**
209	Redding	Redding	119	31	16	1	**167**	0	0	0	0	0	0	1	4	22	1	2	0	**30**
210	Redding	Redding	7	5	17	0	**29**	0	0	0	0	1	0	23	0	44	13	48	5	**134**
211	Redding	Redding	29	16	0	0	**45**	0	0	0	0	0	0	17	0	6	56	17	8	**104**
212	Redding	Redding	0	0	0	0	**0**	0	0	0	0	7	0	26	0	0	1	1	0	**35**
213	Redding	Redding	80	3	6	0	**89**	0	0	0	0	2	0	0	1	3	0	10	1	**17**
214	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	82	0	0	8	12	5	**110**
215	Redding	Redding	131	17	12	0	**160**	261	0	0	19	0	0	0	8	1	0	0	0	**28**
216	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	6	0	0	0	11	6	**23**
217	Redding	Redding	183	4	11	0	**198**	0	0	0	0	0	0	0	0	2	0	0	1	**3**
218	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	58	0	2	7	8	6	**81**
219	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	83	169	0	0	0	3	2	**257**
220	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
221	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	374	0	58	18	0	0	0	**450**
222	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	6	22	0	0	0	0	0	**28**
223	Redding	Redding	40	13	0	0	**53**	0	0	0	0	0	0	13	1	2	3	32	16	**67**
224	Redding	Redding	33	4	0	1	**38**	0	0	0	0	0	75	9	0	0	0	1	1	**86**
225	Redding	Redding	67	6	6	0	**79**	353	0	0	18	0	0	0	0	6	0	0	0	**24**
226	Redding	Redding	44	8	0	0	**52**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
227	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
228	Redding	Redding	2	4	0	0	**6**	0	0	0	0	0	0	21	0	0	1	3	0	**25**
229	Redding	Redding	24	8	0	7	**39**	0	0	0	0	0	3	0	0	7	6	8	0	**24**
230	Redding	Redding	79	6	0	1	**86**	0	0	0	0	0	0	4	0	1	1	0	0	**6**
231	Redding	Redding	369	30	18	4	**421**	0	0	0	0	0	0	6	0	5	2	0	0	**13**
232	Redding	Redding	100	0	0	0	**100**	0	0	0	0	0	0	3	0	1	0	0	0	**4**
241	Redding	Redding	20	53	94	0	**167**	0	0	0	0	0	0	0	0	48	4	1	0	**53**
242	Redding	Redding	3	0	0	0	**3**	0	0	0	0	43	0	8	12	79	46	13	2	**203**
243	Redding	Redding	1	2	91	0	**94**	0	0	0	0	0	0	0	0	0	7	19	10	**36**
244	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	15	0	21	14	34	18	3	**105**
245	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	0	11	35	86	1	**136**
246	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	0	6	0	14	4	1	1	**26**
247	Redding	Redding	1	0	25	0	**26**	0	0	0	0	42	0	0	0	51	59	28	3	**183**
248	Redding	Redding	0	0	5	0	**5**	0	0	0	0	0	0	0	0	0	5	2	1	**8**
249	Redding	Redding	0	1	15	0	**17**	0	0	0	0	10	186	3	0	53	31	18	2	**304**
250	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	38	7	11	5	2	**63**
251	Redding	Redding	2	34	13	0	**49**	0	0	0	0	1	9	0	75	150	14	12	5	**266**
252	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	0	10	33	0	0	0	**53**
253	Redding	Redding	0	0	0	0	**0**	0	0	0	0	17	0	0	9	0	0	0	0	**26**
254	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	487	0	0	0	0	0	0	**489**
255	Redding	Redding	15	4	0	0	**19**	0	0	0	0	1	218	0	17	97	0	11	1	**345**
256	Redding	Redding	79	0	0	0	**79**	0	0	0	0	2	69	0	0	7	0	0	1	**79**
257	Redding	Redding	0	0	4	0	**4**	0	0	962	88	46	115	11	55	70	23	63	27	**498**
258	Redding	Redding	0	0	0	0	**0**	0	0	0	0	4	0	0	1056	1	0	27	0	**1088**
259	Redding	Redding	0	1	5	0	**6**	0	0	0	0	15	249	4	112	107	21	9	1	**518**
260	Redding	Redding	2	6	4	0	**11**	0	0	0	0	1	0	3	115	80	8	5	16	**229**
261	Redding	Redding	13	24	25	0	**62**	0	249	0	20	24	0	35	32	277	38	16	32	**475**
262	Redding	Redding	50	0	0	0	**50**	0	0	0	0	26	27	33	3	15	19	6	0	**129**
263	Redding	Redding	0	0	0	0	**0**	0	0	0	0	10	0	0	0	299	8	2	1	**320**
264	Redding	Redding	4	0	1	0	**5**	0	0	0	0	0	0	0	9	63	0	2	0	**74**
265	Redding	Redding	3	5	31	0	**39**	0	0	0	0	0	0	0	83	37	9	16	1	**146**
266	Redding	Redding	0	0	0	0	**0**	0	0	0	0	29	0	9	1	20	6	15	0	**80**
267	Redding	Redding	0	15	0	0	**15**	0	0	0	0	32	0	0	0	7	11	78	4	**132**
268	Redding	Redding	5	8	21	0	**34**	0	0	0	0	6	0	6	0	6	17	7	7	**49**

269	Redding	Redding	108	38	11	28	**185**	0	0	0	0	0	0	1	0	3	0	1	1	**6**
281	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
282	Redding	Redding	14	17	34	0	**64**	0	0	0	0	5	5	1	2	66	0	19	5	**103**
283	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	60	6	6	4	0	**78**
284	Redding	Redding	30	28	10	0	**68**	0	0	0	0	0	57	45	15	12	0	3	1	**133**
285	Redding	Redding	0	0	53	0	**53**	0	0	0	0	16	28	0	0	22	3	142	18	**229**
286	Redding	Redding	98	10	0	0	**108**	0	0	0	0	0	0	0	5	3	0	0	0	**8**
287	Redding	Redding	0	0	0	0	**0**	1221	0	0	74	0	0	0	0	0	0	0	0	**74**
288	Redding	Redding	35	0	0	0	**35**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
289	Redding	Redding	50	79	50	0	**179**	0	0	0	0	1	0	0	1	1	1	53	0	**57**
290	Redding	Redding	106	22	0	0	**128**	0	0	0	0	0	0	1	2	1	0	0	1	**5**
291	Redding	Redding	6	14	28	0	**47**	0	0	0	0	26	2	3	94	74	5	71	7	**282**
292	Redding	Redding	32	82	5	0	**119**	0	0	0	0	1	0	0	1	3	0	7	1	**13**
293	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	27	101	0	2	2	**132**
296	Redding	Redding	66	35	43	0	**144**	0	0	0	0	0	0	0	1	0	6	5	2	**14**
297	Redding	Redding	156	28	0	0	**184**	0	0	0	0	0	0	17	0	11	0	7	2	**37**
298	Redding	Redding	0	0	0	0	**0**	0	0	0	0	12	0	0	0	56	86	6	0	**160**
299	Redding	Redding	1	0	0	0	**1**	0	0	0	0	18	0	0	26	13	37	16	3	**113**
300	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	125	1	15	214	59	23	0	**437**
301	Redding	Redding	4	3	124	0	**131**	0	0	0	0	1	0	4	18	221	39	20	1	**306**
302	Redding	Redding	16	16	22	0	**54**	0	0	0	0	0	59	13	0	1	5	3	0	**81**
303	Redding	Redding	0	0	0	0	**0**	0	0	0	0	19	0	0	0	0	4	1	1	**25**
304	Redding	Redding	0	1	2	0	**3**	329	0	0	18	3	877	0	4	102	12	5	0	**1022**
305	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	2	47	27	54	15	3	**158**
306	Redding	Redding	0	0	0	0	**0**	0	0	0	0	16	0	24	0	24	22	11	8	**105**
307	Redding	Redding	0	0	0	0	**0**	0	0	0	0	33	0	3	30	33	38	7	1	**145**
321	Redding	Redding	119	0	0	0	**119**	0	0	0	0	0	0	3	0	0	0	0	1	**4**
322	Redding	Redding	101	68	24	0	**193**	0	0	0	0	70	0	3	21	17	26	20	7	**164**
323	Redding	Redding	27	42	32	0	**101**	0	0	0	0	25	0	0	137	27	8	4	1	**202**
324	Redding	Redding	168	55	132	0	**355**	50	110	0	16	0	110	0	0	2	0	2	0	**130**
325	Redding	Redding	83	104	157	0	**344**	0	0	0	0	0	42	4	37	176	1	7	2	**269**
326	Redding	Redding	36	35	0	0	**71**	0	0	0	0	9	10	17	3	16	7	4	1	**67**
327	Redding	Redding	0	0	0	0	**0**	0	0	0	0	19	2	2	0	17	51	4	1	**96**
328	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	6	351	245	4	15	9	**631**
329	Redding	Redding	14	0	8	0	**22**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
330	Redding	Redding	20	0	0	0	**20**	0	0	0	0	2	0	1	31	4	0	14	0	**52**
331	Redding	Redding	51	54	32	0	**137**	0	0	0	0	0	0	0	0	83	0	9	0	**92**
332	Redding	Redding	0	0	0	0	**0**	0	0	0	0	4	58	0	128	101	5	11	6	**313**
333	Redding	Redding	69	4	0	0	**73**	0	0	0	0	0	0	0	7	2	0	0	1	**10**
334	Redding	Redding	27	5	2	0	**34**	0	0	0	0	0	0	0	0	4	0	0	0	**4**
335	Redding	Redding	121	10	24	0	**155**	0	0	0	0	0	0	0	1586	1	2	10	6	**1605**
336	Redding	Redding	3	2	0	0	**5**	0	0	0	0	0	89	1	0	71	5	7	2	**175**
337	Redding	Redding	0	0	6	0	**6**	0	0	0	0	0	0	5	0	89	5	6	1	**106**
338	Redding	Redding	15	19	16	0	**50**	0	0	0	0	0	17	0	186	0	2	45	25	**275**
339	Redding	Redding	8	0	0	0	**8**	0	0	0	0	12	0	32	94	42	34	94	51	**359**
340	Redding	Redding	20	26	298	0	**344**	0	0	0	0	0	0	27	170	3	2	6	1	**210**
341	Redding	Redding	94	59	37	0	**190**	0	0	0	0	1	0	18	0	4	6	17	5	**51**
342	Redding	Redding	286	0	0	0	**286**	0	0	0	0	0	0	2	0	18	0	0	2	**22**
343	Redding	Redding	51	11	0	0	**62**	0	0	0	0	0	0	1	0	5	0	0	0	**6**
351	Redding	Redding	216	5	0	0	**221**	0	0	0	0	3	0	0	0	0	5	0	0	**8**
352	Redding	Redding	140	2	0	0	**142**	0	0	0	0	0	0	0	0	0	0	6	0	**6**
353	Redding	Redding	313	0	0	0	**313**	0	0	0	0	1	0	4	41	22	2	0	3	**73**
354	Redding	Redding	67	0	51	0	**118**	0	250	0	6	0	0	0	138	0	0	0	0	**144**
355	Redding	Redding	0	4	0	0	**4**	0	1931	0	95	0	0	0	0	0	0	0	0	**95**
356	Redding	Redding	2	0	47	0	**49**	0	951	0	56	0	40	0	325	66	1	9	0	**497**
357	Redding	Redding	36	67	104	1	**208**	300	0	0	29	26	59	12	29	12	15	14	3	**199**
358	Redding	Redding	71	57	58	0	**186**	0	0	0	0	17	350	2	2	11	5	142	1	**530**
359	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	10	0	0	0	**10**
360	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	50	0	0	1	0	0	0	**51**
361	Redding	Redding	12	15	40	0	**67**	0	0	0	0	71	0	0	0	6	2	32	18	**129**
362	Redding	Redding	5	8	8	0	**21**	0	0	0	0	0	0	0	0	46	7	7	2	**62**
371	Redding	Redding	178	16	35	0	**229**	0	0	0	0	0	0	4	0	6	0	0	1	**11**
372	Redding	Redding	560	4	0	9	**573**	0	0	0	0	0	0	3	0	17	14	5	3	**42**
373	Redding	Redding	204	0	0	0	**204**	0	0	0	0	0	0	6	0	9	0	0	1	**16**
374	Redding	Redding	46	0	0	0	**46**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

375	Redding	Redding	0	0	0	0	**0**	0	0	0	0	22	0	5	25	40	64	14	2	**172**
376	Redding	Redding	74	7	0	0	**81**	0	0	0	0	0	5	0	50	2	0	8	1	**66**
377	Redding	Redding	139	0	0	0	**139**	0	0	0	0	0	0	7	31	26	3	9	0	**76**
378	Redding	Redding	106	14	0	0	**120**	0	0	0	0	0	0	0	0	2	3	4	0	**9**
379	Redding	Redding	76	0	0	0	**76**	779	0	0	34	0	0	0	0	1	0	0	1	**36**
381	Redding	Redding	394	0	0	0	**394**	0	0	0	0	0	0	0	0	20	0	0	2	**22**
382	Redding	Redding	334	0	0	0	**334**	0	0	0	0	0	0	0	1	6	0	0	0	**7**
383	Redding	Redding	319	0	0	0	**319**	0	0	0	0	0	0	16	2	4	5	6	0	**33**
384	Redding	Redding	154	4	0	0	**158**	0	7	0	2	0	0	5	0	8	2	6	1	**24**
385	Redding	Redding	1	0	12	0	**13**	0	0	0	0	19	0	19	0	0	14	7	0	**59**
386	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
387	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
388	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	2	18	0	0	0	0	0	**20**
391	Redding	Redding	173	0	0	0	**173**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
392	Redding	Redding	110	0	0	0	**110**	0	0	0	0	0	0	6	0	0	4	6	0	**16**
393	Redding	Redding	71	0	0	0	**71**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
394	Redding	Redding	220	2	6	0	**228**	0	0	0	0	0	0	1	0	2	0	0	2	**5**
395	Redding	Redding	11	0	8	46	**65**	0	0	0	0	2	0	58	8	8	40	22	1	**139**
396	Redding	Redding	321	6	53	1	**381**	0	0	0	0	0	0	3	9	10	4	11	1	**38**
397	Redding	Redding	20	12	0	0	**32**	0	0	0	0	0	0	0	0	1	5	9	0	**15**
398	Redding	Redding	60	0	0	0	**60**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
399	Redding	Redding	40	0	0	0	**40**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
400	Redding	Redding	20	0	10	24	**54**	0	0	0	0	0	0	15	0	0	28	2	0	**45**
406	Redding	Redding	56	0	0	0	**56**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
407	Redding	Redding	56	0	0	18	**74**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
408	Redding	Redding	20	16	8	4	**48**	0	0	0	0	0	0	19	0	4	0	5	3	**31**
409	Redding	Redding	48	0	16	7	**71**	0	0	0	0	0	0	3	0	2	2	0	8	**15**
410	Redding	Redding	138	8	0	5	**151**	0	0	0	0	0	0	1	0	0	0	14	0	**15**
411	Redding	Redding	32	13	6	7	**58**	0	0	0	0	0	0	18	0	1	0	0	9	**28**
412	Redding	Redding	14	12	14	2	**42**	148	0	0	9	0	0	0	0	0	0	20	2	**31**
413	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	11	0	1	25	10	4	**51**
414	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	13	0	1	32	14	6	**66**
415	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	18	0	0	0	0	0	**18**
416	Redding	Redding	2	4	90	48	**144**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
417	Redding	Redding	6	12	5	1	**24**	0	0	0	0	0	0	78	0	1	31	29	3	**142**
418	Redding	Redding	41	11	18	36	**106**	0	0	0	0	0	0	1	1	3	0	0	0	**5**
419	Redding	Redding	424	8	0	2	**434**	271	0	0	15	0	0	5	0	6	0	0	3	**29**
420	Redding	Redding	0	8	70	7	**85**	0	0	0	0	0	0	0	0	0	9	1	0	**10**
421	Redding	Redding	0	0	0	0	**0**	0	34	0	5	73	0	0	0	18	115	21	0	**232**
422	Redding	Redding	11	8	0	24	**43**	0	0	0	0	5	0	43	0	6	12	27	8	**101**
426	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
427	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	258	0	0	0	0	0	**258**
428	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	39	70	0	0	19	15	4	**147**
429	Redding	Redding	116	0	0	0	**116**	0	0	0	0	0	0	2	0	9	0	0	0	**11**
431	Redding	Redding	2	0	5	0	**7**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
432	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
433	Redding	Redding	40	0	0	0	**40**	159	83	0	17	0	30	4	0	0	0	0	0	**51**
434	Redding	Redding	61	6	0	0	**67**	0	0	0	0	0	0	2	0	0	1	5	2	**10**
435	Redding	Redding	101	0	0	0	**101**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
436	Redding	Redding	61	0	0	0	**61**	0	0	0	0	0	0	211	3	14	37	86	37	**388**
437	Redding	Redding	73	0	0	0	**73**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
438	Redding	Redding	223	4	2	0	**229**	8	0	0	3	0	0	40	0	11	12	13	14	**92**
439	Redding	Redding	729	0	0	0	**729**	0	0	0	0	0	0	6	0	10	0	0	2	**18**
440	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	1	3	1	**5**
441	Redding	Redding	318	8	5	0	**331**	0	0	0	0	0	0	20	0	6	0	2	0	**28**
451	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	9	12	0	0	0	0	0	**21**
461	Redding	Redding	6	0	0	1	**7**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
462	Redding	Redding	204	0	0	0	**204**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
463	Redding	Redding	368	0	0	0	**368**	0	0	0	0	0	0	6	0	2	0	0	0	**8**
464	Redding	Redding	465	0	0	0	**465**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
465	Redding	Redding	429	2	0	0	**431**	0	0	0	0	0	14	2	36	49	8	32	7	**148**
466	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	0	0	200	7	0	0	0	**207**
467	Redding	Redding	246	0	0	0	**246**	0	0	0	0	0	0	1	8	16	3	6	1	**35**
468	Redding	Redding	62	0	0	0	**62**	0	0	0	0	22	0	0	0	3	0	2	0	**27**
469	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

470	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
471	Redding	Redding	96	3	160	0	**259**	0	0	0	0	0	0	0	0	11	0	0	0	**11**
472	Redding	Redding	120	13	16	0	**149**	0	0	0	0	0	0	5	1	2	0	0	0	**8**
473	Redding	Redding	29	0	0	0	**29**	0	0	0	0	49	0	10	6	20	87	34	1	**207**
474	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
475	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	1	0	**1**
476	Redding	Redding	22	0	0	0	**22**	0	0	0	0	11	0	13	6	29	12	34	12	**117**
477	Redding	Redding	0	0	0	25	**25**	918	0	0	41	0	0	0	0	0	0	0	0	**41**
478	Redding	Redding	49	0	0	0	**49**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
481	Redding	Redding	52	0	2	2	**56**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
482	Redding	Redding	49	20	10	8	**87**	0	0	0	0	0	0	2	0	3	5	13	1	**24**
483	Redding	Redding	34	4	10	20	**68**	633	0	0	36	2	27	1	13	0	0	0	0	**79**
484	Redding	Redding	63	16	0	8	**87**	181	164	0	31	0	0	0	0	0	11	2	0	**44**
491	Redding	Redding	487	4	32	86	**609**	876	0	0	67	2	0	5	3	12	10	11	3	**113**
492	Redding	Redding	215	174	63	66	**518**	0	0	0	0	17	0	17	27	37	20	13	6	**137**
493	Redding	Redding	37	12	0	18	**67**	0	0	0	0	0	0	14	4	10	6	4	0	**38**
494	Redding	Redding	30	16	27	222	**295**	0	0	0	0	0	0	0	0	46	0	1	0	**47**
495	Redding	Redding	4	0	194	239	**437**	0	0	0	0	21	0	13	3	207	20	9	0	**273**
496	Redding	Redding	0	0	0	0	**0**	0	0	0	0	49	0	2	26	19	161	16	2	**274**
497	Redding	Redding	36	130	133	0	**299**	0	0	0	0	0	0	0	10	4	1	13	5	**33**
498	Redding	Redding	23	8	40	0	**71**	0	0	0	0	65	0	0	0	11	148	21	3	**247**
499	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	17	5	16	7	**46**
500	Redding	Redding	3	0	0	12	**15**	0	0	0	0	0	5	7	4	8	9	30	4	**67**
501	Redding	Redding	0	0	347	0	**347**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
502	Redding	Redding	657	0	335	0	**992**	0	0	0	0	18	0	7	62	28	4	16	1	**136**
503	Redding	Redding	27	60	172	0	**259**	0	0	0	0	1	0	0	0	5	0	0	1	**7**
504	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
505	Redding	Redding	56	141	0	0	**197**	0	0	0	0	0	0	2	0	11	0	0	1	**14**
506	Redding	Redding	0	0	0	28	**28**	0	0	0	0	7	0	8	0	0	0	14	6	**35**
511	Redding	Redding	63	0	63	0	**126**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
512	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	68	0	0	0	0	0	0	**68**
513	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
514	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	79	0	**79**
515	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	0	0	0	0	7	4	**19**
521	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	5	258	0	4	1	1	5	**274**
522	Redding	Redding	0	0	0	0	**0**	0	517	0	40	0	276	540	51	44	18	183	51	**1203**
523	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	370	2	97	43	71	30	**613**
524	Redding	Redding	86	0	0	0	**86**	0	0	0	0	0	0	1	0	1	0	0	0	**2**
525	Redding	Redding	91	40	0	199	**330**	0	0	0	0	0	0	1	0	13	0	0	0	**14**
526	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	39	76	0	6	7	5	2	**135**
527	Redding	Redding	72	0	79	55	**206**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
528	Redding	Redding	2	0	0	0	**2**	0	0	0	0	2	0	31	0	1	11	119	4	**168**
529	Redding	Redding	1	0	0	30	**31**	0	0	0	0	0	0	6	0	0	14	42	16	**78**
530	Redding	Redding	132	120	185	0	**437**	0	0	0	0	5	0	43	6	20	219	112	4	**409**
532	Redding	Redding	0	0	0	178	**178**	0	0	0	0	1	0	0	0	7	0	48	1	**57**
541	Redding	Redding	727	0	0	3	**730**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
542	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	184	0	**184**
543	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	319	0	**319**
544	Redding	Redding	9	0	170	3	**182**	0	0	0	0	0	0	3	0	0	9	61	17	**90**
545	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	413	0	**413**
546	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	11	9	5	**25**
547	Redding	Redding	2	2	0	0	**4**	0	0	0	0	2	0	0	0	0	4	396	0	**402**
548	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
549	Redding	Redding	197	0	0	0	**197**	0	0	0	0	0	0	0	0	0	0	73	0	**73**
550	Redding	Redding	153	0	0	0	**153**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
551	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	22	0	0	38	6	0	**66**
552	Redding	Redding	204	0	0	0	**204**	0	0	0	0	0	0	1	0	4	0	0	1	**6**
553	Redding	Redding	80	0	0	0	**80**	0	0	0	0	0	0	1	0	1	0	0	0	**2**
554	Redding	Redding	245	0	0	0	**245**	0	0	0	0	0	0	5	0	7	0	0	2	**14**
555	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	14	33	0	**47**
556	Redding	Redding	305	16	0	1	**322**	0	0	0	0	0	0	6	1	12	19	141	77	**256**
557	Redding	Redding	624	76	54	0	**754**	0	0	0	0	0	0	5	61	37	0	4	0	**107**
558	Redding	Redding	68	0	0	0	**68**	0	0	0	24	0	0	0	0	0	0	0	0	**24**
559	Redding	Redding	83	6	0	6	**95**	0	0	0	0	0	0	0	0	37	0	0	5	**39**
561	Redding	Redding	93	0	0	9	**102**	0	0	0	0	2	0	0	0	3	0	0	20	**25**

571	Redding	Redding	353	0	0	0	**353**	0	0	0	0	0	0	0	3	10	0	0	0	**13**
572	Redding	Redding	189	0	0	36	**225**	261	0	0	43	1	0	2	35	2	0	0	4	**87**
573	Redding	Redding	106	0	32	1	**139**	0	0	0	0	9	0	0	0	1	2	74	1	**87**
574	Redding	Redding	151	0	8	1	**160**	0	0	0	0	0	0	2	0	3	3	11	1	**20**
575	Redding	Redding	2	0	36	1	**39**	0	0	343	79	0	0	0	102	41	1	0	0	**223**
576	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
577	Redding	Redding	184	0	0	0	**184**	0	0	0	0	0	0	4	0	6	0	0	0	**10**
578	Redding	Redding	142	0	0	0	**142**	0	468	0	25	0	0	0	0	2	0	0	0	**27**
579	Redding	Redding	295	0	0	0	**295**	0	0	0	0	0	0	0	0	1	5	1	0	**7**
581	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
582	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	5	20	9	0	**35**
583	Redding	Redding	160	50	0	0	**210**	205	0	0	30	0	0	0	5	5	0	0	0	**40**
584	Redding	Redding	1	24	274	0	**299**	0	0	0	0	0	0	10	4	30	4	6	5	**59**
585	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
586	Redding	Redding	385	5	0	0	**390**	1054	0	0	51	0	0	0	0	9	0	0	1	**61**
587	Redding	Redding	208	3	0	0	**211**	0	0	0	0	0	0	1	0	3	0	0	1	**5**
588	Redding	Redding	321	0	0	0	**321**	0	0	0	0	0	0	0	0	8	0	0	2	**10**
589	Redding	Redding	24	4	0	8	**36**	0	0	0	0	0	0	0	0	0	1	9	0	**10**
590	Redding	Redding	52	0	0	5	**57**	0	0	0	0	0	0	10	0	0	0	12	0	**22**
601	Redding	Redding	0	0	0	0	**0**	0	0	0	0	6	0	0	0	45	173	16	0	**240**
602	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	3	6	204	13	0	**226**
603	Redding	Redding	0	0	0	0	**0**	0	0	0	0	19	0	4	24	16	142	39	6	**250**
604	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	4	4	51	35	194	6	**296**
605	Redding	Redding	0	52	120	0	**172**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
606	Redding	Redding	0	0	0	0	**0**	0	0	0	0	158	0	9	10	94	631	26	0	**927**
607	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	189	1	0	**190**
608	Redding	Redding	0	0	0	0	**0**	0	0	0	0	15	0	0	0	0	69	5	0	**89**
609	Redding	Redding	0	0	0	0	**0**	0	0	0	0	11	5	0	4	11	8	59	0	**98**
610	Redding	Redding	0	182	283	0	**465**	0	0	0	0	0	0	0	0	2	0	11	1	**14**
611	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	91	0	0	**91**
612	Redding	Redding	0	0	0	0	**0**	0	0	0	0	189	0	168	21	21	145	36	10	**589**
613	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	95	3	0	**98**
614	Redding	Redding	0	0	0	0	**0**	0	0	0	0	14	0	0	15	0	91	5	0	**125**
621	Redding	Redding	165	0	0	3	**168**	0	0	0	0	0	0	0	0	3	0	0	5	**8**
622	Redding	Redding	246	0	0	1	**247**	0	0	0	0	0	0	4	13	6	0	5	2	**30**
623	Redding	Redding	451	74	0	2	**527**	0	0	0	0	1	0	15	1	22	9	21	6	**75**
624	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	296	0	**296**
625	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	68	0	0	0	0	0	0	**68**
626	Redding	Redding	18	0	0	0	**18**	0	0	0	0	19	0	97	0	62	46	91	22	**337**
627	Redding	Redding	29	172	44	0	**245**	0	0	0	0	0	0	9	0	3	5	43	22	**82**
628	Redding	Redding	232	0	0	0	**232**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
629	Redding	Redding	8	0	0	0	**8**	0	0	0	0	0	0	2	0	1	0	13	1	**17**
631	Redding	Redding	0	0	0	0	**0**	0	0	0	0	46	0	19	6	43	74	28	8	**223**
632	Redding	Redding	0	0	0	0	**0**	0	0	0	0	201	0	0	10	24	32	6	1	**273**
633	Redding	Redding	0	0	0	0	**0**	0	0	0	0	96	0	0	0	0	61	4	0	**161**
634	Redding	Redding	0	4	0	0	**4**	0	0	0	0	0	0	0	3	1	457	18	0	**479**
635	Redding	Redding	6	4	37	1	**48**	14	0	0	3	0	0	0	12	0	0	5	0	**20**
636	Redding	Redding	5	8	13	0	**26**	0	0	0	0	1	0	0	0	2	0	16	3	**21**
637	Redding	Redding	6	18	394	0	**418**	0	0	0	0	0	0	1	0	21	6	2	0	**30**
638	Redding	Redding	5	3	0	3	**11**	0	0	0	0	0	0	5	15	0	0	0	0	**20**
639	Redding	Redding	67	0	0	0	**67**	0	0	0	0	0	0	1	0	0	0	0	1	**2**
640	Redding	Redding	18	0	0	0	**18**	0	0	0	0	0	0	19	0	0	2	92	45	**158**
641	Redding	Redding	26	106	50	0	**182**	0	0	0	0	0	0	0	0	7	0	5	0	**12**
642	Redding	Redding	0	0	0	0	**0**	0	0	0	0	43	165	23	21	555	0	0	2	**809**
643	Redding	Redding	0	6	0	0	**6**	0	0	0	0	68	57	31	37	184	41	47	2	**466**
644	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	3	83	3	4	2	**95**
646	Redding	Redding	0	0	0	0	**0**	0	0	0	0	137	0	0	0	0	5	80	0	**222**
647	Redding	Redding	0	0	0	0	**0**	0	0	0	0	107	0	0	9	39	88	33	3	**278**
648	Redding	Redding	0	0	0	0	**0**	0	0	0	0	77	0	5	0	29	82	173	5	**370**
649	Redding	Redding	0	0	0	0	**0**	0	0	0	0	78	0	0	39	25	41	12	0	**195**
650	Redding	Redding	0	0	0	0	**0**	0	0	0	0	86	0	0	0	29	5	48	0	**168**
651	Redding	Redding	377	19	13	1	**410**	0	0	0	0	3	74	0	9	310	69	8	7	**479**
652	Redding	Redding	4	42	0	0	**46**	0	0	0	0	0	0	18	15	82	21	13	1	**150**
653	Redding	Redding	0	4	0	0	**4**	0	0	0	0	50	0	0	50	0	30	6	1	**137**
654	Redding	Redding	0	0	0	0	**0**	0	0	0	0	19	0	1	5	60	4	34	4	**126**

655	Redding	Redding	0	0	0	0	**0**	0	0	0	0	89	0	6	0	2	26	58	12	**192**
656	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	9	21	3	0	0	0	**43**
657	Redding	Redding	0	0	0	0	**0**	0	0	0	0	77	0	6	0	102	31	57	5	**278**
658	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	3	71	0	53	24	42	11	**203**
659	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	34	0	0	0	**35**
660	Redding	Redding	0	0	0	0	**0**	0	0	361	106	0	0	4	3	308	52	57	0	**530**
661	Redding	Redding	0	0	0	0	**0**	0	69	0	8	2	5	153	0	49	117	40	27	**400**
662	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	10	15	0	2	0	**30**
663	Redding	Redding	147	0	0	0	**147**	754	0	0	39	0	0	2	12	4	0	0	1	**58**
664	Redding	Redding	0	0	0	0	**0**	0	0	0	0	10	305	28	3	169	34	21	16	**586**
665	Redding	Redding	0	0	0	0	**0**	0	0	0	0	40	0	0	3	8	382	6	0	**439**
666	Redding	Redding	116	4	0	0	**120**	0	178	0	54	0	0	2	7	20	11	9	1	**104**
667	Redding	Redding	108	20	0	0	**128**	0	0	0	0	0	0	0	15	0	0	3	2	**20**
668	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	25	0	36	32	30	11	**133**
669	Redding	Redding	24	0	0	30	**54**	0	0	0	0	0	0	0	13	0	0	23	3	**39**
670	Redding	Redding	30	0	50	0	**80**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
681	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	4	0	1	0	10	7	**25**
682	Redding	Redding	0	0	0	0	**0**	0	0	0	0	88	20	3	128	93	101	49	9	**490**
683	Redding	Redding	84	8	7	0	**99**	0	0	0	0	0	0	5	0	1	0	7	5	**18**
684	Redding	Redding	19	0	99	0	**118**	0	0	0	0	4	0	0	155	423	21	11	0	**614**
685	Redding	Redding	0	0	0	0	**0**	0	0	0	0	11	0	0	5	7	114	38	8	**182**
686	Redding	Redding	11	4	63	0	**78**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
687	Redding	Redding	71	8	12	25	**116**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
688	Redding	Redding	5	0	0	0	**5**	0	0	0	0	81	10	8	11	316	96	47	7	**575**
689	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	3	0	0	42	18	0	**64**
690	Redding	Redding	17	47	34	0	**98**	0	0	0	0	0	0	2	20	84	15	30	17	**168**
691	Redding	Redding	6	0	0	0	**6**	0	0	0	0	3	3	1	26	117	70	25	6	**250**
692	Redding	Redding	27	4	0	0	**31**	0	0	0	0	15	16	32	12	76	57	75	19	**302**
693	Redding	Redding	2	8	152	0	**162**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
694	Redding	Redding	404	74	232	2	**712**	0	523	0	68	0	0	5	36	35	0	0	10	**153**
695	Redding	Redding	41	4	20	0	**65**	0	0	0	0	0	0	0	0	8	0	0	1	**9**
696	Redding	Redding	29	34	0	0	**63**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
697	Redding	Redding	32	0	0	0	**32**	931	0	0	72	0	0	0	0	6	5	24	0	**107**
698	Redding	Redding	172	0	0	1	**173**	0	0	0	0	0	0	0	0	4	0	13	1	**18**
699	Redding	Redding	6	0	0	0	**6**	0	0	0	0	0	0	0	0	0	0	75	0	**75**
701	Redding	Redding	1	16	5	0	**22**	0	0	0	0	178	0	0	0	0	20	10	0	**207**
702	Redding	Redding	0	0	0	0	**0**	0	0	0	0	54	0	0	0	8	53	12	0	**127**
703	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	2	3	6	146	3	1	**169**
704	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	0	**4**
705	Redding	Redding	2	0	0	0	**2**	0	0	0	0	17	0	7	0	14	76	7	0	**121**
706	Redding	Redding	47	0	0	0	**47**	743	0	0	45	0	0	0	0	0	0	0	1	**46**
707	Redding	Redding	5	0	0	0	**5**	0	0	0	0	51	3	1	17	24	9	19	6	**130**
708	Redding	Redding	4	0	0	0	**4**	0	0	0	0	12	5	0	13	6	23	23	3	**85**
709	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	7	8	4	0	7	0	**26**
710	Redding	Redding	6	12	0	0	**18**	0	0	0	0	29	16	19	1	45	21	1	1	**132**
711	Redding	Redding	1	0	0	150	**151**	0	0	0	0	22	0	49	9	35	35	116	63	**329**
712	Redding	Redding	270	265	131	1	**667**	0	0	0	0	25	0	58	1	56	67	75	31	**312**
713	Redding	Redding	120	44	0	0	**164**	0	0	0	0	0	0	4	0	3	21	12	4	**44**
714	Redding	Redding	212	12	9	0	**233**	531	0	0	23	0	0	1	0	8	0	2	3	**37**
715	Redding	Redding	259	10	42	0	**311**	0	0	0	0	0	0	2	0	6	0	21	5	**34**
716	Redding	Redding	188	0	0	0	**188**	0	0	0	0	0	0	9	3	4	0	0	5	**18**
717	Redding	Redding	150	19	106	0	**275**	0	0	62	57	0	0	1	22	2	0	0	0	**82**
718	Redding	Redding	26	0	24	0	**50**	0	79	0	54	10	0	20	0	25	32	54	8	**202**
721	Redding	Redding	50	4	0	0	**54**	554	0	0	30	0	0	0	4	4	0	5	2	**45**
722	Redding	Redding	5	8	0	0	**13**	0	0	0	0	0	0	4	291	56	3	5	3	**362**
723	Redding	Redding	60	20	24	0	**104**	0	0	0	0	0	0	1	41	0	8	6	1	**57**
724	Redding	Redding	3	0	0	0	**3**	0	0	0	0	0	0	0	0	7	4	16	7	**34**
725	Redding	Redding	26	119	147	0	**292**	0	0	0	0	0	0	0	17	7	13	3	0	**40**
726	Redding	Redding	0	0	0	0	**0**	250	1461	0	99	0	0	0	0	0	0	0	0	**99**
727	Redding	Redding	185	3	82	22	**292**	0	0	0	0	0	0	14	13	37	36	22	6	**128**
728	Redding	Redding	1	104	8	0	**113**	0	0	0	0	21	0	8	40	58	19	28	13	**186**
729	Redding	Redding	0	40	0	0	**40**	0	0	0	0	0	0	0	4	11	0	0	1	**16**
730	Redding	Redding	2	0	157	0	**159**	0	0	0	0	0	0	5	2	11	1	10	0	**29**
731	Redding	Redding	515	67	343	1	**926**	0	199	0	31	0	0	3	267	19	31	30	4	**385**
732	Redding	Redding	163	100	110	2	**375**	0	0	0	0	16	0	3	3	30	57	42	6	**157**

733	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	5	0	**7**
741	Redding	Redding	17	0	0	1	**18**	0	0	0	0	1	0	0	0	5	4	0	0	**10**
751	Redding	Redding	326	26	0	0	**352**	0	0	0	0	0	0	6	1	6	0	0	2	**15**
752	Redding	Redding	208	46	0	0	**254**	0	0	0	0	0	0	0	1	6	0	0	1	**8**
753	Redding	Redding	106	0	0	0	**106**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
754	Redding	Redding	69	16	0	0	**85**	0	0	0	0	0	0	0	0	46	3	11	2	**62**
755	Redding	Redding	293	10	0	0	**303**	0	0	0	0	0	0	0	5	5	0	0	1	**11**
756	Redding	Redding	702	6	6	1	**715**	330	0	0	18	3	0	15	9	20	20	50	7	**142**
757	Redding	Redding	139	4	0	0	**143**	0	0	0	0	3	0	13	0	2	41	13	6	**78**
758	Redding	Redding	320	0	19	0	**339**	0	0	0	0	3	0	0	0	2	0	2	2	**9**
759	Redding	Redding	37	0	0	0	**37**	0	0	0	0	0	0	0	0	2	0	0	3	**5**
760	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
761	Redding	Redding	4	2	0	4	**10**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
766	Redding	Redding	81	0	0	0	**81**	0	0	0	0	1	0	0	3	23	2	29	1	**59**
767	Redding	Redding	352	0	0	0	**352**	0	0	0	0	0	0	4	0	14	0	0	6	**24**
768	Redding	Redding	317	0	0	0	**317**	0	0	0	0	0	0	7	2	10	0	0	2	**21**
769	Redding	Redding	562	0	0	1	**563**	0	0	0	0	0	0	18	0	15	0	0	0	**33**
770	Redding	Redding	16	0	0	0	**16**	0	0	0	0	0	0	5	0	0	5	14	1	**25**
781	Redding	Redding	55	0	0	0	**55**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
782	Redding	Redding	617	0	0	0	**617**	0	0	0	0	0	0	0	10	3	0	0	0	**13**
783	Redding	Redding	180	0	0	0	**180**	0	0	0	0	0	0	5	0	1	0	0	1	**7**
784	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	0	2	**4**
785	Redding	Redding	2	0	0	0	**2**	0	0	0	0	4	8	14	0	104	5	43	0	**178**
786	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	34	0	396	0	0	20	**450**
787	Redding	Redding	102	0	0	0	**102**	0	0	0	0	0	0	54	0	2	0	0	0	**56**
788	Redding	Redding	0	0	0	0	**0**	0	0	0	0	14	0	30	0	14	5	35	10	**108**
791	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
792	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	297	90	0	18	7	308	43	**763**
793	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
794	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
795	Redding	Redding	0	0	0	148	**148**	0	0	0	0	0	0	143	0	12	41	29	9	**233**
796	Redding	Redding	35	0	0	6	**41**	0	0	0	0	0	0	5	0	49	13	26	8	**100**
951	Shasta County	Redding Sphere	21	0	0	9	**30**	0	0	0	0	0	0	2	0	0	0	0	1	**3**
952	Shasta County	Redding Sphere	107	0	0	6	**113**	0	0	0	0	0	0	2	0	7	1	2	4	**16**
953	Shasta County	Redding Sphere	93	10	0	15	**118**	0	0	0	0	0	0	0	0	7	0	4	4	**15**
954	Shasta County	Redding Sphere	30	4	0	51	**85**	0	0	0	0	0	0	126	0	6	17	28	1	**178**
955	Shasta County	Redding Sphere	31	16	0	77	**124**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
956	Shasta County	Redding Sphere	41	2	0	10	**53**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
957	Shasta County	Redding Sphere	15	0	0	2	**17**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
958	Shasta County	Redding Sphere	26	0	0	6	**32**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
959	Shasta County	Redding Sphere	193	0	0	3	**196**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
961	Shasta County	Redding Sphere	25	4	0	21	**50**	0	0	0	0	0	3	0	0	1	0	0	0	**4**
962	Shasta County	Redding Sphere	18	2	9	13	**42**	0	0	0	0	0	0	3	0	3	1	2	0	**9**
963	Shasta County	Redding Sphere	30	2	0	12	**44**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
964	Shasta County	Redding Sphere	24	0	97	11	**132**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
965	Shasta County	Redding Sphere	25	0	0	17	**42**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
966	Shasta County	Redding Sphere	20	0	0	34	**54**	0	0	0	0	0	0	20	0	0	7	8	4	**39**
971	Shasta County	Redding Sphere	65	0	0	4	**69**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
972	Shasta County	Redding Sphere	31	0	0	0	**31**	0	0	0	0	0	0	2	0	0	0	0	1	**3**
973	Shasta County	Redding Sphere	12	0	0	0	**12**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
974	Shasta County	Redding Sphere	33	0	0	1	**34**	0	0	0	0	0	19	6	10	0	0	18	3	**56**
975	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	14830	1165	0	0	0	0	6	0	0	0	**1171**
981	Shasta County	Redding Sphere	81	0	0	8	**89**	0	0	0	0	0	0	7	0	7	0	0	1	**15**
982	Shasta County	Redding Sphere	12	0	0	1	**13**	0	0	0	0	0	0	4	0	0	0	0	0	**4**
983	Shasta County	Redding Sphere	55	0	0	6	**61**	0	0	0	0	0	0	0	0	16	0	0	0	**16**
984	Shasta County	Redding Sphere	302	4	0	52	**358**	0	0	0	0	0	0	1	0	9	0	0	3	**13**
985	Shasta County	Redding Sphere	109	4	12	41	**166**	0	0	0	0	0	0	25	0	4	2	11	4	**46**
991	Shasta County	Redding Sphere	27	0	0	2	**29**	0	0	0	0	0	0	1	0	1	0	0	0	**2**
992	Shasta County	Redding Sphere	28	0	0	6	**34**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
996	Shasta County	Redding Sphere	45	0	0	2	**47**	0	0	0	0	0	0	5	0	1	2	11	6	**25**
997	Shasta County	Redding Sphere	16	0	0	0	**16**	0	0	0	0	0	0	0	0	0	2	0	0	**2**
998	Shasta County	Redding Sphere	13	0	0	2	**15**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
999	Shasta County	Redding Sphere	22	4	0	5	**31**	729	0	0	49	0	0	0	0	0	0	0	0	**49**
1000	Shasta County	Redding Sphere	15	0	0	9	**24**	0	0	0	0	0	310	58	0	2	3	11	2	**386**
1001	Shasta County	Redding Sphere	12	0	0	0	**12**	0	0	0	0	0	0	121	0	1	6	21	11	**160**

1002	Shasta County	Redding Sphere	67	12	0	57	**136**	0	0	0	0	0	0	1	11	1	2	0	1	**16**
1003	Shasta County	Redding Sphere	21	0	12	1	**34**	0	0	0	0	10	0	59	0	37	16	50	25	**196**
1006	Shasta County	Redding Sphere	2	0	0	0	**2**	0	0	0	0	0	0	0	0	1	6	11	0	**18**
1007	Shasta County	Redding Sphere	19	0	0	4	**23**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1011	Shasta County	Redding Sphere	86	8	0	15	**109**	0	0	0	0	0	0	1	0	0	0	1	0	**2**
1012	Shasta County	Redding Sphere	74	0	0	0	**74**	0	0	0	0	0	0	3	0	7	0	0	0	**10**
1013	Shasta County	Redding Sphere	64	0	0	4	**68**	0	0	0	0	0	0	15	0	2	0	0	0	**17**
1014	Shasta County	Redding Sphere	13	0	0	3	**16**	0	0	0	0	0	0	10	0	54	0	1	0	**64**
1015	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	1	0	**1**
1016	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1017	Shasta County	Redding Sphere	21	2	0	2	**25**	0	0	0	0	0	0	17	0	0	0	4	6	**27**
1018	Shasta County	Redding Sphere	11	4	0	0	**15**	0	0	0	0	0	0	0	0	0	0	400	5	**405**
1019	Shasta County	Redding Sphere	3	0	0	0	**3**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
1021	Shasta County	Redding Sphere	57	0	0	0	**57**	0	0	0	0	0	0	1	0	2	0	1	0	**4**
1022	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1026	Shasta County	Redding Sphere	39	0	0	4	**43**	0	0	0	0	0	0	1	0	3	0	0	0	**4**
1027	Shasta County	Redding Sphere	89	2	0	3	**94**	0	0	0	0	14	0	136	12	71	53	67	34	**386**
1028	Shasta County	Redding Sphere	5	0	0	0	**5**	0	0	0	0	0	0	15	0	0	3	0	0	**18**
1029	Shasta County	Redding Sphere	3	0	0	0	**3**	0	0	0	0	0	0	14	0	55	0	12	6	**86**
1030	Shasta County	Redding Sphere	43	0	0	0	**43**	0	0	0	0	0	0	36	0	22	7	36	6	**106**
1031	Shasta County	Redding Sphere	281	0	0	25	**306**	0	0	0	0	24	0	58	0	8	2	7	1	**100**
1032	Shasta County	Redding Sphere	125	1	0	32	**158**	0	0	0	0	0	0	7	0	5	0	0	10	**22**
1033	Shasta County	Redding Sphere	117	0	0	6	**123**	0	0	0	0	0	0	1	0	6	0	17	2	**26**
1034	Shasta County	Redding Sphere	13	0	0	0	**13**	0	0	0	0	0	0	103	0	215	0	0	0	**318**
1036	Shasta County	Redding Sphere	19	4	0	12	**35**	0	0	0	0	0	0	6	0	0	0	0	0	**6**
1037	Shasta County	Redding Sphere	311	0	0	0	**311**	0	0	0	0	0	0	1	5	13	0	0	3	**22**
1038	Shasta County	Redding Sphere	45	8	0	2	**55**	0	0	0	0	2	0	4	0	2	3	6	3	**20**
1041	Shasta County	Redding Sphere	16	0	0	164	**180**	0	0	0	0	0	0	8	24	10	9	15	3	**69**
1042	Shasta County	Redding Sphere	115	32	0	156	**303**	0	0	0	0	0	0	58	0	0	4	17	25	**104**
1043	Shasta County	Redding Sphere	35	16	0	36	**87**	0	0	0	0	0	0	44	0	2	28	33	2	**109**
1044	Shasta County	Redding Sphere	101	0	0	20	**121**	0	0	0	0	2	20	171	0	42	155	21	8	**419**
		Redding	*30,326*	*4,443*	*7,592*	*1,961*	*44,320*	*12,114*	*7,273*	*1,728*	*1,698*	*3,554*	*5,624*	*4,903*	*7,764*	*10,096*	*7,649*	*8,015*	*1,475*	*50,750*
		R. Sphere	*3,372*	*141*	*130*	*972*	*4,615*	*729*	*0*	*14,830*	*1,214*	*52*	*352*	*1,155*	*62*	*633*	*329*	*816*	*188*	*4,796*
Total 2020 (Redding + Redding Sphere			33,698	4,584	7,722	2,933	**48,935**	12,843	7,273	16,558	2,912	3,606	5,976	6,058	7,826	10,729	7,978	8,831	1,663	**55,546**

2020 MODEL

			Dwelling Units					School Enrollment (students)			Employment (jobs)									
			Single-family	Multi-family (2-4 units)	Multi-family (5+ units)	Mobile homes	Total dwewlling units	Grade school	High school	University	Education	Food	Government	Industrial	Medical	Office	Retail	Service	Other	Total employment
TAZ 974	Shasta County	Redding Sphere	33	0	0	1	**34**	0	0	0	0	0	19	6	10	0	0	18	3	**56**
TAZ 975	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	14830	1165	0	0	0	0	6	0	0	0	**1171**

			Dwelling Units					School Enrollment (students)			Employment (jobs)									
			Single-family	Multi-family (2-4 units)	Multi-family (5+ units)	Mobile homes	Total dwelling units	Grade school	High school	University	Education	Food	Government	Industrial	Medical	Office	Retail	Service	Other	Total employment
TAZ	JURIS	Community	SFDU	MF2_4DU	MF5_DU	MHDU	**TOT_DU**	Stugrd	Stuhgh	Stuuni	Empedu	Empfood	Empgov	Empind	Empmed	Empofc	Empret	Empsvc	Empoth	**Emptot**
201	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	120	0	0	0	0	0	0	120
202	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
203	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
204	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
205	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	0	**1**
206	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	2	0	1	0	0	0	**3**
207	Redding	Redding	0	0	35	0	**35**	0	0	0	0	1	0	0	0	0	0	1	3	**5**
208	Redding	Redding	0	0	5	0	**5**	0	0	0	0	0	0	7	0	0	0	0	1	**8**
209	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
210	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	2	**6**
211	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	2	0	0	0	1	6	**9**
212	Redding	Redding	0	0	10	0	**10**	0	0	0	0	0	0	4	0	0	0	0	0	**4**
213	Redding	Redding	2	6	42	0	**50**	0	0	0	0	2	1	1	1	3	0	11	2	**21**
214	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
215	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
216	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	4	**4**
217	Redding	Redding	66	0	0	0	**66**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
218	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	43	0	0	0	0	3	**46**
219	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	56	27	0	0	0	0	1	**84**
220	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
221	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
222	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
223	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	2	0	0	0	0	11	**13**
224	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
225	Redding	Redding	10	0	0	0	**10**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
226	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
227	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
228	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	0	0	0	0	0	**3**
229	Redding	Redding	12	0	0	0	**12**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
230	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
231	Redding	Redding	3	0	0	0	**3**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
232	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
241	Redding	Redding	0	0	75	0	**75**	0	0	0	0	0	0	0	0	4	0	0	0	**4**
242	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	1	0	7	0	2	2	**14**
243	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	7	**7**
244	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	1	1	**2**
245	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	1	0	**2**
246	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
247	Redding	Redding	0	0	35	0	**35**	0	0	0	0	1	0	0	0	5	0	1	2	**9**
248	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
249	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	5	0	1	1	**7**
250	Redding	Redding	0	0	40	0	**40**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
251	Redding	Redding	1	4	9	0	**14**	0	0	0	0	2	1	0	0	10	0	7	3	**23**
252	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	0	**4**
253	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	0	**1**
254	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	60	0	0	0	0	0	0	**60**
255	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	10	0	0	1	**11**
256	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	1	0	0	0	**2**
257	Redding	Redding	0	0	241	0	**241**	0	0	0	0	0	0	2	0	8	0	0	19	**29**
258	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
259	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	7	0	0	1	**8**
260	Redding	Redding	1	3	0	0	**4**	0	0	0	0	1	0	0	201	10	0	6	11	**229**
261	Redding	Redding	0	0	75	0	**75**	0	0	0	0	1	0	10	0	7	0	2	24	**44**
262	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
263	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	31	0	0	0	**31**
264	Redding	Redding	0	1	0	0	**1**	0	0	0	0	0	0	0	0	3	0	1	0	**4**
265	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
266	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	2	0	0	0	**3**
267	Redding	Redding	0	0	60	0	**60**	0	0	0	0	1	0	0	0	1	0	0	2	**4**
268	Redding	Redding	0	0	30	0	**30**	0	0	0	0	0	0	1	0	0	0	0	5	**6**
269	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
281	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

282	Redding	Redding	10	32	0	0	**42**	0	0	0	0	7	1	0	3	17	0	28	6	**62**
283	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
284	Redding	Redding	0	0	50	0	**50**	0	0	0	0	0	0	5	0	1	0	0	1	**7**
285	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	12	**12**
286	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
287	Redding	Redding	0	0	0	0	**0**	750	0	0	70	0	0	0	0	0	0	0	0	**70**
288	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
289	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	0	**1**
290	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
291	Redding	Redding	0	85	150	0	**235**	0	0	0	0	34	7	5	17	61	0	196	129	**449**
292	Redding	Redding	0	17	75	0	**92**	0	0	0	0	7	2	1	3	78	0	31	5	**127**
293	Redding	Redding	0	0	35	0	**35**	0	0	0	0	0	0	0	0	4	0	1	2	**7**
296	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
297	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
298	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	6	0	3	0	**9**
299	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	1	2	**4**
300	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	39	0	2	0	**42**
301	Redding	Redding	2	6	0	0	**8**	0	0	0	0	3	1	1	1	5	0	10	2	**23**
302	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	2	0	0	0	0	0	**2**
303	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	0	**1**
304	Redding	Redding	1	2	3	0	**6**	0	0	0	0	1	0	0	1	1	0	3	1	**7**
305	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	4	2	**8**
306	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	4	0	2	0	1	4	**11**
307	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	9	0	1	1	**12**
321	Redding	Redding	-2	0	0	0	**-2**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
322	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	0	1	0	1	1	**5**
323	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	2	0	0	1	**4**
324	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
325	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	16	0	0	0	**16**
326	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	0	2	0	0	0	**5**
327	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	2	0	3	0	0	1	**6**
328	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	280	16	0	2	4	**302**
329	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
330	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
331	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	6	0	0	0	**6**
332	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	33	0	21	3	**57**
333	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
334	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
335	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
336	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	7	0	0	1	**8**
337	Redding	Redding	0	1	0	0	**1**	0	0	0	0	0	0	1	0	8	0	1	1	**11**
338	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	17	**17**
339	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	4	0	1	35	**41**
340	Redding	Redding	1	2	0	0	**3**	0	0	0	0	1	0	2	1	1	0	3	2	**10**
341	Redding	Redding	1	3	0	0	**4**	0	0	0	0	1	0	0	1	2	0	5	2	**11**
342	Redding	Redding	48	0	0	0	**48**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
343	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
351	Redding	Redding	250	0	60	0	**310**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
352	Redding	Redding	81	0	0	0	**81**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
353	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	0	**1**
354	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
355	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
356	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	5	0	0	0	**5**
357	Redding	Redding	0	0	0	0	**0**	800	0	0	74	0	0	1	0	1	0	0	0	**76**
358	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	1	0	0	0	0	1	**3**
359	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
360	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	80	0	0	0	0	0	0	**80**
361	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	0	0	0	0	12	**14**
362	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	5	0	0	1	**6**
371	Redding	Redding	110	0	0	0	**110**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
372	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
373	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
374	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
375	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	2	2	**7**
376	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
377	Redding	Redding	-1	0	59	0	**58**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
378	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

379	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
381	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
382	Redding	Redding	117	0	0	0	**117**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
383	Redding	Redding	115	0	0	0	**115**	0	0	0	0	0	0	2	0	0	0	0	0	**2**
384	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	0	1	**2**
385	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	0	**1**
386	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
387	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
388	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	0	0	0	0	0	**3**
391	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
392	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
393	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
394	Redding	Redding	39	0	0	0	**39**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
395	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	1	0	**1**
396	Redding	Redding	75	0	0	0	**75**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
397	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
398	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
399	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
400	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	1	0	**2**
406	Redding	Redding	100	0	0	0	**100**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
407	Redding	Redding	75	0	0	0	**75**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
408	Redding	Redding	200	0	0	0	**200**	0	0	0	0	0	0	2	0	0	0	0	2	**4**
409	Redding	Redding	80	0	0	0	**80**	0	0	0	0	0	0	0	0	0	0	0	4	**4**
410	Redding	Redding	10	0	0	0	**10**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
411	Redding	Redding	8	0	0	0	**8**	0	0	0	0	0	0	12	0	0	0	0	5	**17**
412	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
413	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
414	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
415	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	52	0	0	0	0	0	**52**
416	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
417	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	1	2	**4**
418	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
419	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
420	Redding	Redding	37	0	0	0	**37**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
421	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	0	0	2	0	4	0	**9**
422	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	0	4	**5**
426	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
427	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	40	0	0	0	0	0	**40**
428	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
429	Redding	Redding	3	0	0	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
431	Redding	Redding	67	0	0	0	**67**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
432	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
433	Redding	Redding	244	0	0	0	**244**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
434	Redding	Redding	19	0	0	0	**19**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
435	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
436	Redding	Redding	-2	0	0	0	**-2**	0	0	0	0	0	0	18	0	1	0	0	22	**41**
437	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
438	Redding	Redding	21	0	0	0	**21**	0	0	0	0	0	0	2	0	2	0	0	6	**10**
439	Redding	Redding	-6	0	0	0	**-6**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
440	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
441	Redding	Redding	-5	0	0	0	**-5**	0	0	0	0	0	0	3	0	0	0	0	0	**3**
451	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	658	0	0	0	0	0	**658**
461	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
462	Redding	Redding	65	0	0	0	**65**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
463	Redding	Redding	231	0	0	0	**231**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
464	Redding	Redding	30	0	0	0	**30**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
465	Redding	Redding	48	0	0	0	**48**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
466	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	0	**4**
467	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
468	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	0	**1**
469	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
470	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
471	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
472	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
473	Redding	Redding	0	0	35	0	**35**	0	0	0	0	1	0	2	0	2	0	2	1	**8**
474	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
475	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	1	0	**1**

476	Redding	Redding	0	0	120	0	**120**	0	0	0	0	0	0	1	0	3	0	0	8	**12**
477	Redding	Redding	0	0	120	0	**120**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
478	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
481	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
482	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
483	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	3	0	0	**3**
484	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
491	Redding	Redding	171	0	0	0	**171**	0	0	0	0	0	0	0	0	0	0	0	-3	**-3**
492	Redding	Redding	0	0	94	0	**94**	0	0	0	0	1	0	0	0	1	0	0	3	**5**
493	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	2	0	1	0	0	0	**3**
494	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	20	0	0	0	**20**
495	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	1	0	0	0	0	0	**2**
496	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	2	0	5	1	**9**
497	Redding	Redding	-1	0	0	0	**-1**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
498	Redding	Redding	161	0	0	0	**161**	0	0	0	0	3	0	0	0	1	0	4	2	**10**
499	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	117	1	0	0	4	**122**
500	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
501	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
502	Redding	Redding	28	0	0	0	**28**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
503	Redding	Redding	-1	0	0	0	**-1**	0	0	0	0	1	0	0	0	0	0	0	0	**1**
504	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
505	Redding	Redding	10	0	0	0	**10**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
506	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	2	0	0	0	0	3	**5**
511	Redding	Redding	26	0	0	0	**26**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
512	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
513	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
514	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	-3	0	**-3**
515	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	75	3	**78**
521	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	20	0	2	0	0	3	**25**
522	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	56	0	3	0	0	26	**85**
523	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	32	0	7	0	1	19	**59**
524	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
525	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
526	Redding	Redding	9	0	0	0	**9**	0	0	0	0	0	0	1	0	0	0	0	2	**3**
527	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
528	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	3	2	**5**
529	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	10	**10**
530	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	5	3	**9**
532	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
541	Redding	Redding	127	0	0	0	**127**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
542	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	70	0	**70**
543	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	-10	0	**-10**
544	Redding	Redding	80	0	0	0	**80**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
545	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	202	326	0	**528**
546	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
547	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	61	0	270	0	**331**
548	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	282	0	**282**
549	Redding	Redding	605	0	0	0	**605**	0	0	0	0	0	0	0	0	0	0	-2	0	**-2**
550	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
551	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	2	0	**2**
552	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
553	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
554	Redding	Redding	52	0	0	0	**52**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
555	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
556	Redding	Redding	70	0	0	0	**70**	0	0	0	0	0	0	0	0	1	0	0	47	**48**
557	Redding	Redding	9	0	0	0	**9**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
558	Redding	Redding	-2	0	0	0	**-2**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
559	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	0	-2	**1**
561	Redding	Redding	93	0	0	0	**93**	0	0	0	0	1	0	0	0	0	0	0	13	**14**
571	Redding	Redding	50	0	0	0	**50**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
572	Redding	Redding	50	0	0	0	**50**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
573	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
574	Redding	Redding	9	0	0	0	**9**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
575	Redding	Redding	200	0	0	0	**200**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
576	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
577	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
578	Redding	Redding	150	0	0	0	**150**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

579	Redding	Redding	59	0	0	0	**59**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
581	Redding	Redding	42	0	0	0	**42**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
582	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
583	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
584	Redding	Redding	50	0	0	0	**50**	0	0	0	0	0	0	0	0	1	0	0	2	3	**3**
585	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
586	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
587	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
588	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	1	**1**
589	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
590	Redding	Redding	23	0	0	0	**23**	0	300	0	15	0	0	0	0	0	0	0	0	15	**15**
601	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	6	0	9	**9**
602	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	7	0	8	**8**
603	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	2	0	-1	3	5	**5**
604	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	1	0	7	0	-4	2	7	**7**
605	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
606	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	0	0	4	0	9	0	16	**16**
607	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
608	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	3	0	3	**3**
609	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
610	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	6	0	6	**6**
611	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
612	Redding	Redding	0	0	0	0	**0**	0	0	0	0	6	0	22	0	2	0	5	5	40	**40**
613	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
614	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
621	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	3	**3**
622	Redding	Redding	30	0	0	0	**30**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
623	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	1	0	0	2	4	**4**
624	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	-9	0	-9	**-9**
625	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
626	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	3	0	6	0	2	13	25	**25**
627	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	14	14	**14**
628	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
629	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
631	Redding	Redding	0	64	0	0	**64**	0	0	0	0	4	0	1	0	9	0	15	5	34	**34**
632	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	0	0	2	0	1	1	12	**12**
633	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	0	0	0	0	2	0	5	**5**
634	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	12	0	12	**12**
635	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
636	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	2	0	9	2	14	**14**
637	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	1	**1**
638	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
639	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
640	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	0	0	0	0	28	31	**31**
641	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
642	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	3	0	38	0	47	0	90	**90**
643	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	4	0	7	0	1	2	17	**17**
644	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	7	0	0	1	8	**8**
646	Redding	Redding	0	0	0	0	**0**	0	0	0	0	5	0	0	0	0	0	0	0	5	**5**
647	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	0	0	3	0	3	2	11	**11**
648	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	0	0	3	0	3	2	11	**11**
649	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	1	0	2	**2**
650	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	0	0	0	0	0	0	3	**3**
651	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	0	28	0	3	3	36	**36**
652	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	4	0	0	1	6	**6**
653	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	1	0	1	**1**
654	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	8	0	1	4	14	**14**
655	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	1	0	0	0	1	7	11	**11**
656	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
657	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	0	10	0	1	3	16	**16**
658	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	1	7	12	**12**
659	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	3	0	0	0	4	**4**
660	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	16	0	2	0	18	**18**
661	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	9	0	2	0	2	14	27	**27**
662	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	2	0	4	**4**
663	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
664	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	34	15	0	82	8	139	**139**

665	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	4	0	**5**
666	Redding	Redding	-3	0	0	0	**-3**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
667	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
668	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	1	7	**11**
669	Redding	Redding	32	0	0	0	**32**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
670	Redding	Redding	19	0	0	0	**19**	0	0	0	0	0	0	0	78	0	0	0	0	**78**
681	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	129	0	0	1	2	**133**
682	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	9	0	3	4	**17**
683	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
684	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	0	**4**
685	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	3	5	**9**
686	Redding	Redding	0	0	0	0	**0**	0	0	0	0	5	0	0	0	152	0	0	0	**157**
687	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
688	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	0	0	6	0	2	3	**14**
689	Redding	Redding	0	0	120	0	**120**	0	0	0	0	0	0	0	0	0	0	2	0	**2**
690	Redding	Redding	0	0	180	0	**180**	0	0	0	0	0	0	0	0	19	0	0	10	**29**
691	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	5	0	2	4	**11**
692	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	1	0	5	0	1	11	**19**
693	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
694	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	0	6	**9**
695	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	5	0	0	1	**6**
696	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
697	Redding	Redding	0	0	0	0	**0**	750	0	0	69	0	0	0	0	0	0	0	0	**69**
698	Redding	Redding	15	0	0	0	**15**	0	0	0	0	0	0	0	71	0	149	0	0	**220**
699	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
701	Redding	Redding	0	0	0	0	**0**	0	0	0	0	6	0	0	0	0	0	5	0	**11**
702	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	0	1	0	3	0	**6**
703	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
704	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	6	**6**
705	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	1	0	2	0	**4**
706	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
707	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	0	0	0	2	**3**
708	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
709	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
710	Redding	Redding	0	0	45	0	**45**	0	0	0	0	2	0	2	0	4	0	0	1	**9**
711	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	3	0	1	39	**44**
712	Redding	Redding	0	0	60	0	**60**	0	0	0	0	0	0	1	0	4	0	0	19	**24**
713	Redding	Redding	-2	0	0	0	**-2**	0	0	0	0	0	0	2	0	0	0	0	2	**4**
714	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
715	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
716	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	-3	**-3**
717	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
718	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	2	0	1	5	**9**
721	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
722	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	1	**5**
723	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
724	Redding	Redding	0	0	50	0	**50**	0	0	0	0	0	0	0	0	1	0	0	3	**4**
725	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
726	Redding	Redding	0	0	0	0	**0**	750	0	0	70	0	0	0	0	0	0	0	0	**70**
727	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	3	**4**
728	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	1	0	5	0	0	8	**15**
729	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
730	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
731	Redding	Redding	37	0	0	0	**37**	0	0	0	0	0	0	0	0	1	0	1	0	**2**
732	Redding	Redding	-1	0	0	0	**-1**	0	0	0	0	1	0	0	0	2	0	17	2	**22**
733	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
741	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	0	0	3	0	0	0	**4**
751	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
752	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
753	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
754	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	1	**5**
755	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
756	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	1	0	2	30	0	3	**44**
757	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	2	4	**7**
758	Redding	Redding	70	0	0	0	**70**	0	0	0	0	0	0	0	0	0	0	136	2	**138**
759	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
760	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	226	0	0	0	**226**

761	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	168	**168**
766	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
767	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
768	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
769	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	2	0	0	0	0	0	**2**
770	Redding	Redding	39	0	0	0	**39**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
781	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
782	Redding	Redding	486	0	0	0	**486**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
783	Redding	Redding	256	0	0	0	**256**	500	0	0	47	0	0	3	0	0	0	0	0	**50**
784	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	2	**3**
785	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	-1	0	0	0	**-1**
786	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	0	4	0	0	13	**20**
787	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	-1	0	155	0	0	0	**154**
788	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	16	0	2	0	0	6	**24**
791	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
792	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	254	0	53	0	0	8	**315**
793	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
794	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1080	0	0	0	0	0	**1080**
795	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	7	0	1	0	1	5	**14**
796	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	0	4	**7**
951	Shasta County	Redding Sphere	16	0	0	0	**16**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
952	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
953	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
954	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	4	0	0	0	0	1	**5**
955	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
956	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
957	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
958	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
959	Shasta County	Redding Sphere	-1	0	0	0	**-1**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
961	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
962	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
963	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
964	Shasta County	Redding Sphere	3	0	0	0	**3**	0	0	0	0	0	0	0	0	40	0	0	0	**40**
965	Shasta County	Redding Sphere	4	0	0	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
966	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
971	Shasta County	Redding Sphere	-2	0	0	0	**-2**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
972	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
973	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
974	Shasta County	Redding Sphere	0	0	360	0	**360**	0	0	0	0	50	0	0	0	0	50	0	2	**102**
975	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	1400	103	0	0	0	0	1	0	0	0	**104**
981	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
982	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
983	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
984	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
985	Shasta County	Redding Sphere	7	0	0	0	**7**	0	0	0	0	0	0	3	0	0	0	0	1	**4**
991	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
992	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
996	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	3	**3**
997	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
998	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
999	Shasta County	Redding Sphere	0	0	0	0	**0**	400	0	0	35	0	0	0	0	0	0	0	0	**35**
1000	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1001	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	11	0	0	0	0	6	**17**
1002	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1003	Shasta County	Redding Sphere	19	0	0	0	**19**	0	0	0	0	0	0	2	0	1	0	0	14	**17**
1006	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1007	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1011	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1012	Shasta County	Redding Sphere	7	0	0	0	**7**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1013	Shasta County	Redding Sphere	29	0	0	0	**29**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1014	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	4	0	5	0	0	0	**9**
1015	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1016	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1017	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	7	60	0	0	0	3	**70**
1018	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	2	**2**
1019	Shasta County	Redding Sphere	6	0	0	0	**6**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1021	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

1022	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1026	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1027	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	10	0	5	0	1	17	**33**
1028	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
1029	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	2	0	57	0	0	43	**102**
1030	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	2	0	1	0	0	2	**5**
1031	Shasta County	Redding Sphere	112	0	0	0	**112**	0	0	0	0	44	0	1	0	0	0	0	0	**45**
1032	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	4	**4**
1033	Shasta County	Redding Sphere	150	0	0	0	**150**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1034	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	195	0	-13	0	0	0	**182**
1036	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1037	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
1038	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
1041	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1042	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	3	0	0	0	0	13	**16**
1043	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	3	0	0	0	1	2	**6**
1044	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	23	0	3	0	1	3	**30**
		Redding	*5,217*	*226*	*1,913*	*0*	*7,356*	*3,550*	*300*	*0*	*345*	*184*	*329*	*2,477*	*938*	*1,494*	*384*	*1,792*	*1,108*	*9,051*
		R. Sphere	*350*	*0*	*360*	*0*	*710*	*400*	*0*	*1,400*	*138*	*94*	*0*	*272*	*60*	*103*	*50*	*3*	*127*	*847*
Total Growth (Redding + Redding Sphere			5,567	226	2,273	0	**8,066**	3,950	300	1,400	483	278	329	2,749	998	1,597	434	1,795	1,235	**9,898**

Total growth for Redding (including sphere of influence) based on net change from 2020 to 2045 land use scenarios.

			Dwelling Units					School Enrollment (students)			Employment (jobs)									
			Single-family	Multi-family (2-4 units)	Multi-family (5+ units)	Mobile homes	Total dwelling units	Grade school	High school	University	Education	Food	Government	Industrial	Medical	Office	Retail	Service	Other	Total employment
TAZ	JURIS	Community	SFDU	MF2_4DU	MF5_DU	MHDU	**TOT_DU**	Stugrd	Stuhgh	Stuuni	Empedu	Empfood	Empgov	Empind	Empmed	Empofc	Empret	Empsvc	Empoth	**Emptot**
201	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	204	0	0	0	0	0	0	**204**
202	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	15	0	0	0	0	0	0	**15**
203	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	75	0	0	**75**
204	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	9	1	0	**10**
205	Redding	Redding	0	0	0	0	**0**	0	0	0	0	35	0	0	0	0	0	9	0	**44**
206	Redding	Redding	17	14	0	0	**31**	0	0	0	0	0	20	26	2	8	3	9	0	**68**
207	Redding	Redding	6	0	0	0	**6**	0	0	0	0	25	0	16	0	0	36	10	6	**93**
208	Redding	Redding	146	102	73	0	**321**	0	0	0	0	0	0	47	0	5	4	0	2	**58**
209	Redding	Redding	119	31	16	1	**167**	0	0	0	0	0	0	1	4	24	1	2	0	**32**
210	Redding	Redding	7	5	17	0	**29**	0	0	0	0	1	0	23	0	48	13	48	7	**140**
211	Redding	Redding	29	16	0	0	**45**	0	0	0	0	0	0	19	0	6	56	18	14	**113**
212	Redding	Redding	0	0	0	0	**0**	0	0	0	0	7	0	30	0	0	1	1	0	**39**
213	Redding	Redding	82	9	18	0	**110**	0	0	0	0	4	1	1	2	6	0	21	3	**37**
214	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	82	0	0	8	12	8	**113**
215	Redding	Redding	131	17	12	0	**160**	261	0	0	19	0	0	0	8	1	0	0	0	**28**
216	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	6	0	0	0	11	10	**27**
217	Redding	Redding	283	4	11	0	**298**	0	0	0	0	0	0	0	0	2	0	0	1	**3**
218	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	61	0	2	7	8	9	**87**
219	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	139	196	0	0	0	3	3	**340**
220	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
221	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	374	0	58	20	0	0	0	**452**
222	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	6	22	0	0	0	0	0	**28**
223	Redding	Redding	40	13	0	0	**53**	0	0	0	0	0	0	15	1	2	3	32	27	**80**
224	Redding	Redding	33	4	0	1	**38**	0	0	0	0	0	75	9	0	0	0	1	1	**86**
225	Redding	Redding	77	6	6	0	**89**	353	0	0	18	0	0	0	0	6	0	0	0	**24**
226	Redding	Redding	44	8	0	0	**52**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
227	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
228	Redding	Redding	2	4	0	0	**6**	0	0	0	0	0	0	24	0	0	1	3	0	**28**
229	Redding	Redding	36	8	0	7	**51**	0	0	0	0	0	3	0	0	7	6	8	0	**24**
230	Redding	Redding	79	6	0	1	**86**	0	0	0	0	0	0	4	0	1	1	0	0	**6**
231	Redding	Redding	372	30	18	4	**424**	0	0	0	0	0	0	7	0	5	2	0	0	**14**
232	Redding	Redding	101	0	0	0	**101**	0	0	0	0	0	0	3	0	1	0	0	0	**4**
241	Redding	Redding	20	53	94	0	**167**	0	0	0	0	0	0	0	0	52	4	1	0	**57**
242	Redding	Redding	3	0	0	0	**3**	0	0	0	0	45	0	9	12	86	46	15	4	**217**
243	Redding	Redding	1	2	91	0	**94**	0	0	0	0	0	0	0	0	0	7	19	17	**43**
244	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	15	0	21	14	34	19	4	**107**
245	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	0	12	35	87	1	**138**
246	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	0	6	0	15	4	1	1	**27**
247	Redding	Redding	1	0	25	0	**26**	0	0	0	0	43	0	0	0	56	59	29	5	**192**
248	Redding	Redding	0	0	5	0	**5**	0	0	0	0	0	0	0	0	0	5	2	1	**8**
249	Redding	Redding	0	1	16	0	**18**	0	0	0	0	10	186	3	0	58	31	19	3	**311**
250	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	38	8	11	5	3	**65**
251	Redding	Redding	3	38	22	0	**63**	0	0	0	0	3	10	0	75	160	14	19	8	**289**
252	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	0	10	37	0	0	0	**57**
253	Redding	Redding	0	0	0	0	**0**	0	0	0	0	18	0	0	9	0	0	0	0	**27**
254	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	547	0	0	0	0	0	0	**549**
255	Redding	Redding	15	4	0	0	**19**	0	0	0	0	1	218	0	17	107	0	11	2	**356**
256	Redding	Redding	79	0	0	0	**79**	0	0	0	0	3	69	0	0	8	0	0	1	**81**
257	Redding	Redding	0	0	4	0	**4**	0	0	962	88	46	115	13	55	78	23	63	46	**527**
258	Redding	Redding	0	0	0	0	**0**	0	0	0	0	4	0	0	1,056	2	0	27	0	**1,089**
259	Redding	Redding	0	1	5	0	**6**	0	0	0	0	15	249	4	112	114	21	9	2	**526**
260	Redding	Redding	3	9	10	0	**22**	0	0	0	0	2	0	3	316	90	8	11	27	**458**
261	Redding	Redding	13	24	27	0	**65**	0	249	0	20	25	0	45	32	284	38	18	56	**517**
262	Redding	Redding	50	0	0	0	**50**	0	0	0	0	26	27	33	3	16	19	6	0	**130**
263	Redding	Redding	0	0	0	0	**0**	0	0	0	0	10	0	0	0	330	8	2	1	**351**
264	Redding	Redding	4	1	2	0	**7**	0	0	0	0	0	0	0	0	9	66	0	3	0	**78**
265	Redding	Redding	3	5	31	0	**39**	0	0	0	0	0	0	0	83	40	9	16	1	**149**
266	Redding	Redding	0	0	0	0	**0**	0	0	0	0	30	0	9	1	22	6	15	0	**83**
267	Redding	Redding	0	15	0	0	**15**	0	0	0	0	33	0	0	0	8	11	78	6	**136**
268	Redding	Redding	5	8	21	0	**34**	0	0	0	0	6	0	7	0	6	17	7	12	**55**
269	Redding	Redding	108	38	11	28	**185**	0	0	0	0	0	0	1	0	3	0	1	1	**6**
281	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

282	Redding	Redding	24	49	99	0	**172**	0	0	0	0	12	6	1	5	83	0	47	11	**166**
283	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	60	6	6	4	0	**78**
284	Redding	Redding	30	28	10	0	**68**	0	0	0	0	0	57	50	15	13	0	3	2	**140**
285	Redding	Redding	0	0	53	0	**53**	0	0	0	0	16	28	0	0	22	3	142	30	**241**
286	Redding	Redding	98	10	0	0	**108**	0	0	0	0	0	0	0	5	3	0	0	0	**8**
287	Redding	Redding	0	0	0	0	**0**	1971	0	0	144	0	0	0	0	0	0	0	0	**144**
288	Redding	Redding	35	0	0	0	**35**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
289	Redding	Redding	50	79	50	0	**179**	0	0	0	0	2	0	0	1	1	1	53	0	**58**
290	Redding	Redding	106	22	0	0	**128**	0	0	0	0	0	0	1	2	1	0	0	1	**5**
291	Redding	Redding	34	99	197	0	**330**	0	0	0	0	60	9	8	111	135	5	267	136	**731**
292	Redding	Redding	37	99	38	0	**174**	0	0	0	0	8	2	1	4	81	0	38	6	**140**
293	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	27	105	0	3	4	**139**
296	Redding	Redding	66	35	43	0	**144**	0	0	0	0	0	0	0	1	0	6	5	3	**15**
297	Redding	Redding	156	28	0	0	**184**	0	0	0	0	0	0	18	0	11	0	7	2	**38**
298	Redding	Redding	0	0	0	0	**0**	0	0	0	0	12	0	0	0	62	86	9	0	**169**
299	Redding	Redding	1	0	0	0	**1**	0	0	0	0	18	0	0	26	14	37	17	5	**117**
300	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	125	2	15	253	59	25	0	**479**
301	Redding	Redding	6	9	136	0	**151**	0	0	0	0	4	1	5	19	226	39	30	3	**326**
302	Redding	Redding	16	16	22	0	**54**	0	0	0	0	0	59	15	0	1	5	3	0	**83**
303	Redding	Redding	0	0	0	0	**0**	0	0	0	0	20	0	0	0	0	4	1	1	**26**
304	Redding	Redding	1	3	5	0	**9**	329	0	0	18	4	877	0	5	103	12	8	1	**1,027**
305	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	2	47	29	54	19	5	**166**
306	Redding	Redding	0	0	0	0	**0**	0	0	0	0	16	0	28	0	26	22	12	12	**116**
307	Redding	Redding	0	0	0	0	**0**	0	0	0	0	34	0	3	30	42	38	8	2	**157**
321	Redding	Redding	117	0	0	0	**117**	0	0	0	0	0	0	3	0	0	0	0	2	**5**
322	Redding	Redding	101	68	24	0	**193**	0	0	0	0	72	0	3	21	18	26	21	8	**169**
323	Redding	Redding	27	42	32	0	**101**	0	0	0	0	26	0	0	137	29	8	4	2	**205**
324	Redding	Redding	168	55	132	0	**355**	50	110	0	16	0	110	0	0	2	0	2	0	**130**
325	Redding	Redding	83	104	157	0	**344**	0	0	0	0	0	42	4	37	192	1	7	2	**285**
326	Redding	Redding	36	35	0	0	**71**	0	0	0	0	9	10	20	3	18	7	4	1	**71**
327	Redding	Redding	0	0	0	0	**0**	0	0	0	0	19	2	4	0	20	51	4	2	**102**
328	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	6	631	261	4	17	13	**932**
329	Redding	Redding	14	0	8	0	**22**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
330	Redding	Redding	20	0	0	0	**20**	0	0	0	0	2	0	1	31	4	0	14	0	**52**
331	Redding	Redding	51	54	32	0	**137**	0	0	0	0	0	0	0	0	89	0	9	0	**98**
332	Redding	Redding	0	0	0	0	**0**	0	0	0	0	4	58	0	128	134	5	32	9	**370**
333	Redding	Redding	69	4	0	0	**73**	0	0	0	0	0	0	0	7	2	0	0	1	**10**
334	Redding	Redding	27	5	2	0	**34**	0	0	0	0	0	0	0	0	4	0	0	0	**4**
335	Redding	Redding	121	10	24	0	**155**	0	0	0	0	0	0	0	1,586	1	2	10	9	**1,608**
336	Redding	Redding	3	2	0	0	**5**	0	0	0	0	0	89	1	0	78	5	7	3	**183**
337	Redding	Redding	0	1	7	0	**8**	0	0	0	0	0	0	6	0	97	5	7	2	**117**
338	Redding	Redding	15	19	16	0	**50**	0	0	0	0	0	17	0	186	0	2	45	42	**292**
339	Redding	Redding	8	0	0	0	**8**	0	0	0	0	12	0	33	94	46	34	95	86	**400**
340	Redding	Redding	21	28	301	0	**350**	0	0	0	0	1	0	29	171	4	2	9	3	**219**
341	Redding	Redding	95	62	44	0	**200**	0	0	0	0	2	0	18	1	6	6	22	7	**63**
342	Redding	Redding	321	0	0	0	**321**	0	0	0	0	0	0	2	0	19	0	0	2	**23**
343	Redding	Redding	51	11	0	0	**62**	0	0	0	0	0	0	1	0	5	0	0	0	**6**
351	Redding	Redding	464	5	0	0	**469**	0	0	0	0	3	0	0	0	0	5	0	0	**8**
352	Redding	Redding	221	2	0	0	**223**	0	0	0	0	0	0	0	0	0	0	6	0	**6**
353	Redding	Redding	313	0	0	0	**313**	0	0	0	0	2	0	4	41	22	2	0	3	**73**
354	Redding	Redding	67	0	51	0	**118**	0	250	0	6	0	0	0	138	0	0	0	0	**144**
355	Redding	Redding	0	4	0	0	**4**	0	1931	0	95	0	0	0	0	0	0	0	0	**95**
356	Redding	Redding	2	0	47	0	**49**	0	951	0	56	0	40	0	325	71	1	9	0	**502**
357	Redding	Redding	36	67	104	1	**208**	1100	0	0	103	26	59	13	29	13	15	14	3	**275**
358	Redding	Redding	71	57	58	0	**186**	0	0	0	0	18	350	3	2	11	5	142	2	**533**
359	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	11	0	0	0	**11**
360	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	130	0	0	1	0	0	0	**131**
361	Redding	Redding	12	15	40	0	**67**	0	0	0	0	73	0	0	0	6	2	32	30	**143**
362	Redding	Redding	5	8	8	0	**21**	0	0	0	0	0	0	0	0	51	7	7	3	**68**
371	Redding	Redding	288	16	34	0	**338**	0	0	0	0	0	0	5	0	6	0	0	1	**12**
372	Redding	Redding	560	4	0	9	**573**	0	0	0	0	0	0	3	0	17	14	5	5	**44**
373	Redding	Redding	204	0	0	0	**204**	0	0	0	0	0	0	6	0	9	0	0	1	**16**
374	Redding	Redding	46	0	0	0	**46**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
375	Redding	Redding	0	0	0	0	**0**	0	0	0	0	22	0	5	25	43	64	16	4	**179**
376	Redding	Redding	74	7	0	0	**81**	0	0	0	0	0	5	0	50	2	0	8	2	**67**
377	Redding	Redding	138	0	0	0	**138**	0	0	0	0	0	0	7	31	26	3	9	0	**76**
378	Redding	Redding	106	14	0	0	**120**	0	0	0	0	0	0	0	0	2	3	4	0	**9**

379	Redding	Redding	76	0	0	0	**76**	779	0	0	34	0	0	0	0	1	0	0	1	**36**
381	Redding	Redding	394	0	0	0	**394**	0	0	0	0	0	0	0	0	21	0	0	2	**23**
382	Redding	Redding	335	0	0	0	**335**	0	0	0	0	0	0	0	1	6	0	0	0	**7**
383	Redding	Redding	318	0	0	0	**318**	0	0	0	0	0	0	18	2	4	5	6	0	**35**
384	Redding	Redding	154	4	0	0	**158**	0	7	0	2	0	0	6	0	8	2	6	2	**26**
385	Redding	Redding	1	0	12	0	**13**	0	0	0	0	20	0	19	0	0	14	7	0	**60**
386	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
387	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
388	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	2	21	0	0	0	0	0	**23**
391	Redding	Redding	173	0	0	0	**173**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
392	Redding	Redding	110	0	0	0	**110**	0	0	0	0	0	0	7	0	0	4	6	0	**17**
393	Redding	Redding	71	0	0	0	**71**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
394	Redding	Redding	259	2	6	0	**267**	0	0	0	0	0	0	1	0	2	0	0	2	**5**
395	Redding	Redding	11	0	8	46	**65**	0	0	0	0	2	0	58	8	8	40	23	1	**140**
396	Redding	Redding	476	6	51	1	**534**	0	0	0	0	0	0	3	9	10	4	11	1	**38**
397	Redding	Redding	21	12	0	0	**33**	0	0	0	0	0	0	0	0	1	5	9	0	**15**
398	Redding	Redding	60	0	0	0	**60**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
399	Redding	Redding	40	0	0	0	**40**	0	0	0	0	0	0	0	0	2	0	0	1	**3**
400	Redding	Redding	20	0	10	24	**54**	0	0	0	0	0	0	16	0	0	28	3	0	**47**
406	Redding	Redding	197	0	0	0	**197**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
407	Redding	Redding	181	0	0	18	**199**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
408	Redding	Redding	333	16	8	4	**361**	0	0	0	0	0	0	21	0	4	0	5	5	**34**
409	Redding	Redding	200	0	16	7	**223**	0	0	0	0	0	0	3	0	2	2	0	12	**19**
410	Redding	Redding	148	8	0	5	**161**	0	0	0	0	0	0	1	0	0	0	14	0	**15**
411	Redding	Redding	40	13	6	7	**66**	0	0	0	0	0	0	30	0	1	0	0	14	**45**
412	Redding	Redding	14	12	14	2	**42**	148	0	0	9	0	0	0	0	0	0	20	2	**31**
413	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	11	0	1	25	10	7	**53**
414	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	13	0	1	32	14	8	**68**
415	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	20	0	0	0	0	0	**20**
416	Redding	Redding	2	4	87	48	**141**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
417	Redding	Redding	6	12	5	1	**24**	0	0	0	0	0	0	79	0	1	31	30	5	**145**
418	Redding	Redding	41	11	18	36	**106**	0	0	0	0	0	0	1	1	3	0	0	0	**5**
419	Redding	Redding	424	8	0	2	**434**	271	0	0	15	0	0	5	0	6	0	0	5	**31**
420	Redding	Redding	0	8	68	7	**83**	0	0	0	0	0	0	0	0	0	9	1	0	**10**
421	Redding	Redding	0	0	0	0	**0**	0	34	0	5	76	0	0	0	20	115	25	0	**241**
422	Redding	Redding	11	8	0	24	**43**	0	0	0	0	5	0	44	0	6	12	27	12	**106**
426	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
427	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	298	0	0	0	0	0	**298**
428	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	39	70	0	0	19	15	6	**149**
429	Redding	Redding	119	0	0	0	**119**	0	0	0	0	0	0	2	0	9	0	0	0	**11**
431	Redding	Redding	69	0	5	0	**74**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
432	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
433	Redding	Redding	284	0	0	0	**284**	159	83	0	17	0	30	4	0	0	0	0	0	**51**
434	Redding	Redding	80	6	0	0	**86**	0	0	0	0	0	0	2	0	0	1	5	3	**11**
435	Redding	Redding	101	0	0	0	**101**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
436	Redding	Redding	59	0	0	0	**59**	0	0	0	0	0	0	229	3	15	37	86	59	**429**
437	Redding	Redding	73	0	0	0	**73**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
438	Redding	Redding	244	4	2	0	**250**	8	0	0	3	0	0	42	0	13	12	13	20	**102**
439	Redding	Redding	723	0	0	0	**723**	0	0	0	0	0	0	7	0	10	0	0	2	**19**
440	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	1	3	2	**6**
441	Redding	Redding	313	8	5	0	**326**	0	0	0	0	0	0	23	0	6	0	2	0	**30**
451	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	9	670	0	0	0	0	0	**679**
461	Redding	Redding	6	0	0	1	**7**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
462	Redding	Redding	197	0	0	0	**197**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
463	Redding	Redding	474	0	0	0	**474**	0	0	0	0	0	0	6	0	2	0	0	0	**8**
464	Redding	Redding	495	0	0	0	**495**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
465	Redding	Redding	477	2	0	0	**479**	0	0	0	0	0	14	2	36	49	8	32	10	**151**
466	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	0	0	200	11	0	0	0	**211**
467	Redding	Redding	246	0	0	0	**246**	0	0	0	0	0	0	1	8	17	3	6	1	**36**
468	Redding	Redding	62	0	0	0	**62**	0	0	0	0	23	0	0	0	3	0	2	0	**28**
469	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
470	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
471	Redding	Redding	96	3	160	0	**259**	0	0	0	0	0	0	0	0	11	0	0	0	**11**
472	Redding	Redding	120	13	16	0	**149**	0	0	0	0	0	0	5	1	2	0	0	0	**8**
473	Redding	Redding	29	0	0	0	**29**	0	0	0	0	50	0	12	6	22	87	36	2	**215**
474	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
475	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	2	0	**2**

476	Redding	Redding	22	0	0	0	**22**	0	0	0	0	11	0	14	6	32	12	34	20	**129**
477	Redding	Redding	0	0	0	25	**25**	918	0	0	41	0	0	0	0	0	0	0	0	**41**
478	Redding	Redding	49	0	0	0	**49**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
481	Redding	Redding	52	0	2	2	**56**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
482	Redding	Redding	49	20	10	8	**87**	0	0	0	0	0	0	2	0	3	5	13	1	**24**
483	Redding	Redding	34	4	10	20	**68**	633	0	0	36	2	27	1	13	0	0	0	0	**79**
484	Redding	Redding	63	16	0	8	**87**	181	164	0	31	0	0	0	0	0	11	2	0	**44**
491	Redding	Redding	658	4	32	86	**780**	876	0	0	67	2	0	5	3	12	10	11	3	**113**
492	Redding	Redding	215	174	63	66	**518**	0	0	0	0	18	0	17	27	38	20	13	9	**142**
493	Redding	Redding	37	12	0	18	**67**	0	0	0	0	0	0	16	4	11	6	4	0	**40**
494	Redding	Redding	30	16	27	222	**295**	0	0	0	0	0	0	0	0	66	0	1	0	**67**
495	Redding	Redding	4	0	194	239	**437**	0	0	0	0	22	0	14	3	207	20	9	0	**275**
496	Redding	Redding	0	0	0	0	**0**	0	0	0	0	50	0	2	26	21	161	21	3	**283**
497	Redding	Redding	35	130	133	0	**298**	0	0	0	0	0	0	0	10	4	1	13	8	**35**
498	Redding	Redding	177	8	40	0	**225**	0	0	0	0	68	0	0	0	12	148	25	5	**257**
499	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	18	5	16	11	**51**
500	Redding	Redding	3	0	0	12	**15**	0	0	0	0	0	5	7	4	8	9	30	6	**68**
501	Redding	Redding	0	0	347	0	**347**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
502	Redding	Redding	657	0	335	0	**992**	0	0	0	0	18	0	7	62	29	4	16	1	**137**
503	Redding	Redding	26	60	172	0	**258**	0	0	0	0	2	0	0	0	5	0	0	1	**8**
504	Redding	Redding	0	0	230	0	**230**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
505	Redding	Redding	131	141	0	0	**272**	0	0	0	0	0	0	2	0	12	0	0	2	**16**
506	Redding	Redding	0	0	0	28	**28**	0	0	0	0	7	0	10	0	0	0	14	9	**40**
511	Redding	Redding	89	0	155	0	**244**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
512	Redding	Redding	0	0	94	0	**94**	0	0	0	0	0	68	0	0	0	0	0	0	**68**
513	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
514	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	76	0	**76**
515	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	0	0	0	0	82	7	**97**
521	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	5	278	0	6	1	1	8	**298**
522	Redding	Redding	0	0	0	0	**0**	0	517	0	40	0	276	596	51	47	18	183	77	**1,288**
523	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	402	2	104	43	72	49	**671**
524	Redding	Redding	86	0	0	0	**86**	0	0	0	0	0	0	1	0	1	0	0	0	**2**
525	Redding	Redding	91	40	0	199	**330**	0	0	0	0	0	0	1	0	14	0	0	0	**15**
526	Redding	Redding	9	0	0	0	**9**	0	0	0	0	0	39	77	0	6	7	5	4	**137**
527	Redding	Redding	72	0	79	55	**206**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
528	Redding	Redding	2	0	0	0	**2**	0	0	0	0	2	0	31	0	1	11	122	6	**172**
529	Redding	Redding	1	0	0	30	**31**	0	0	0	0	0	0	6	0	0	14	42	26	**88**
530	Redding	Redding	132	120	185	0	**437**	0	0	0	0	5	0	43	6	21	219	117	7	**418**
532	Redding	Redding	0	0	0	178	**178**	0	0	0	0	1	0	0	0	7	0	48	1	**57**
541	Redding	Redding	944	0	0	3	**947**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
542	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	254	0	**254**
543	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	309	0	**309**
544	Redding	Redding	175	0	353	3	**531**	0	0	0	0	0	0	3	0	0	9	61	17	**90**
545	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	739	0	**739**
546	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	11	9	8	**27**
547	Redding	Redding	2	2	0	0	**4**	0	0	0	0	2	0	0	0	61	4	666	0	**733**
548	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	282	0	**282**
549	Redding	Redding	242	0	0	0	**242**	0	0	0	0	0	0	0	0	0	0	71	0	**71**
550	Redding	Redding	246	0	0	0	**246**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
551	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	22	0	0	38	8	0	**68**
552	Redding	Redding	319	0	0	0	**319**	0	0	0	0	0	0	1	0	4	0	0	2	**7**
553	Redding	Redding	80	0	0	0	**80**	0	0	0	0	0	0	1	0	1	0	0	0	**2**
554	Redding	Redding	297	0	0	0	**297**	0	0	0	0	0	0	5	0	7	0	0	3	**15**
555	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	14	33	0	**47**
556	Redding	Redding	375	16	0	1	**392**	0	0	0	0	0	0	6	1	13	19	141	124	**304**
557	Redding	Redding	636	76	54	0	**766**	0	0	0	0	0	0	5	61	37	0	4	0	**107**
558	Redding	Redding	66	0	0	0	**66**	0	0	0	24	0	0	0	0	0	0	0	0	**24**
559	Redding	Redding	83	6	0	6	**95**	0	0	0	0	0	0	0	0	40	0	0	3	**43**
561	Redding	Redding	93	0	0	9	**102**	0	0	0	0	3	0	0	0	3	0	0	33	**39**
571	Redding	Redding	459	0	0	0	**459**	0	0	0	0	0	0	0	3	11	0	0	0	**14**
572	Redding	Redding	304	0	0	36	**340**	261	0	0	43	1	0	2	35	2	0	0	6	**89**
573	Redding	Redding	106	0	32	1	**139**	0	0	0	0	9	0	0	0	1	2	74	1	**87**
574	Redding	Redding	160	0	8	1	**169**	0	0	0	0	0	0	2	0	3	3	11	1	**20**
575	Redding	Redding	571	0	138	1	**709**	0	0	343	79	0	0	0	102	44	1	0	0	**226**
576	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
577	Redding	Redding	184	0	0	0	**184**	0	0	0	0	0	0	4	0	6	0	0	0	**10**
578	Redding	Redding	562	0	0	0	**562**	0	468	0	25	0	0	0	0	2	0	0	0	**27**

579	Redding	Redding	354	0	0	0	**354**	0	0	0	0	0	0	0	0	1	5	1	0	**7**
581	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
582	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1	0	5	20	9	0	**35**
583	Redding	Redding	160	50	0	0	**210**	205	0	0	30	0	0	0	5	5	0	0	0	**40**
584	Redding	Redding	1	24	274	0	**299**	0	0	0	0	0	0	10	4	31	4	6	7	**62**
585	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
586	Redding	Redding	385	5	0	0	**390**	1054	0	0	51	0	0	0	0	9	0	0	1	**61**
587	Redding	Redding	208	3	0	0	**211**	0	0	0	0	0	0	1	0	3	0	0	1	**5**
588	Redding	Redding	321	0	0	0	**321**	0	0	0	0	0	0	0	0	8	0	0	3	**11**
589	Redding	Redding	24	4	0	8	**36**	0	0	0	0	0	0	0	0	0	1	9	0	**10**
590	Redding	Redding	75	0	0	5	**80**	0	0	0	0	0	0	10	0	0	0	12	0	**22**
601	Redding	Redding	0	0	0	0	**0**	0	0	0	0	6	0	0	0	48	173	22	0	**249**
602	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	3	7	204	20	0	**234**
603	Redding	Redding	0	0	0	0	**0**	0	0	0	0	19	0	5	24	18	142	38	9	**255**
604	Redding	Redding	0	0	0	0	**0**	0	0	0	0	3	0	5	4	58	35	190	8	**303**
605	Redding	Redding	0	52	120	0	**172**	0	0	0	0	0	0	0	0	1	0	0	1	**2**
606	Redding	Redding	0	0	0	0	**0**	0	0	0	0	161	0	9	10	98	631	35	0	**944**
607	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	189	1	0	**190**
608	Redding	Redding	0	0	0	0	**0**	0	0	0	0	15	0	0	0	0	69	8	0	**91**
609	Redding	Redding	0	0	0	0	**0**	0	0	0	0	11	5	0	4	11	8	59	0	**98**
610	Redding	Redding	0	182	283	0	**465**	0	0	0	0	0	0	0	0	2	0	17	1	**20**
611	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	91	0	0	**91**
612	Redding	Redding	0	0	0	0	**0**	0	0	0	0	195	0	190	21	23	145	41	15	**630**
613	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	95	3	0	**98**
614	Redding	Redding	0	0	0	0	**0**	0	0	0	0	14	0	0	15	0	91	5	0	**125**
621	Redding	Redding	165	0	0	3	**168**	0	0	0	0	0	0	0	0	3	0	0	8	**11**
622	Redding	Redding	244	0	0	1	**245**	0	0	0	0	0	0	4	13	6	0	5	2	**30**
623	Redding	Redding	451	74	0	2	**527**	0	0	0	0	1	0	16	1	23	9	21	8	**79**
624	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	287	0	**287**
625	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	68	0	0	0	0	0	0	**68**
626	Redding	Redding	18	0	0	0	**18**	0	0	0	0	20	0	100	0	68	46	93	35	**362**
627	Redding	Redding	29	172	44	0	**245**	0	0	0	0	0	0	9	0	3	5	43	36	**96**
628	Redding	Redding	232	0	0	0	**232**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
629	Redding	Redding	8	0	0	0	**8**	0	0	0	0	0	0	2	0	1	0	13	1	**17**
631	Redding	Redding	0	0	0	0	**0**	0	0	0	0	50	0	20	6	52	74	43	13	**258**
632	Redding	Redding	0	0	0	0	**0**	0	0	0	0	209	0	0	10	26	32	7	2	**285**
633	Redding	Redding	0	0	0	0	**0**	0	0	0	0	99	0	0	0	0	61	6	0	**166**
634	Redding	Redding	0	4	0	0	**4**	0	0	0	0	0	0	0	3	1	457	30	0	**491**
635	Redding	Redding	6	4	37	1	**48**	14	0	0	3	0	0	0	12	0	0	5	0	**20**
636	Redding	Redding	5	8	13	0	**26**	0	0	0	0	2	0	0	0	4	0	25	5	**36**
637	Redding	Redding	6	18	394	0	**418**	0	0	0	0	0	0	1	0	22	6	2	0	**31**
638	Redding	Redding	5	3	0	3	**11**	0	0	0	0	0	0	5	15	0	0	0	0	**20**
639	Redding	Redding	67	0	0	0	**67**	0	0	0	0	0	0	1	0	0	0	0	1	**2**
640	Redding	Redding	18	0	0	0	**18**	0	0	0	0	0	0	22	0	0	2	92	73	**189**
641	Redding	Redding	26	106	49	0	**181**	0	0	0	0	0	0	0	0	7	0	5	0	**12**
642	Redding	Redding	0	0	0	0	**0**	0	0	0	0	45	165	26	21	593	0	47	2	**898**
643	Redding	Redding	0	6	0	0	**6**	0	0	0	0	71	57	35	37	191	41	48	4	**483**
644	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	3	90	3	4	3	**103**
646	Redding	Redding	0	0	0	0	**0**	0	0	0	0	142	0	0	0	0	5	80	0	**227**
647	Redding	Redding	0	0	0	0	**0**	0	0	0	0	110	0	0	9	42	88	36	5	**290**
648	Redding	Redding	0	0	0	0	**0**	0	0	0	0	80	0	5	0	32	82	176	7	**380**
649	Redding	Redding	0	0	0	0	**0**	0	0	0	0	79	0	0	39	25	41	13	0	**197**
650	Redding	Redding	0	0	0	0	**0**	0	0	0	0	89	0	0	0	29	5	48	0	**171**
651	Redding	Redding	377	19	13	1	**410**	0	0	0	0	5	74	0	9	338	69	11	10	**517**
652	Redding	Redding	4	42	0	0	**46**	0	0	0	0	0	0	19	15	86	21	13	2	**156**
653	Redding	Redding	0	4	0	0	**4**	0	0	0	0	50	0	0	50	0	30	7	1	**138**
654	Redding	Redding	0	0	0	0	**0**	0	0	0	0	20	0	1	5	68	4	35	8	**140**
655	Redding	Redding	0	0	0	0	**0**	0	0	0	0	91	0	7	0	2	26	59	19	**204**
656	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	10	9	21	3	0	0	0	**43**
657	Redding	Redding	0	0	0	0	**0**	0	0	0	0	79	0	6	0	112	31	58	8	**295**
658	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	3	71	0	57	24	43	18	**216**
659	Redding	Redding	0	0	0	0	**0**	0	0	0	0	2	0	0	0	37	0	0	0	**39**
660	Redding	Redding	0	0	0	0	**0**	0	0	361	106	0	0	4	3	324	52	59	0	**548**
661	Redding	Redding	0	0	0	0	**0**	0	69	0	8	2	5	162	0	51	117	42	41	**428**
662	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	3	10	17	0	4	0	**33**
663	Redding	Redding	147	0	0	0	**147**	754	0	0	39	0	0	2	12	4	0	0	1	**58**
664	Redding	Redding	0	0	0	0	**0**	0	0	0	0	10	305	28	3	184	34	137	24	**725**

665	Redding	Redding	0	0	0	0	**0**	0	0	0	0	41	0	0	3	8	382	10	0	**444**
666	Redding	Redding	113	4	0	0	**117**	0	178	0	54	0	0	2	7	20	11	9	1	**104**
667	Redding	Redding	108	20	0	0	**128**	0	0	0	0	0	0	0	15	0	0	3	2	**20**
668	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	25	0	39	32	31	18	**145**
669	Redding	Redding	56	0	0	30	**86**	0	0	0	0	0	0	0	13	0	0	23	4	**40**
670	Redding	Redding	49	0	50	0	**99**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
681	Redding	Redding	0	0	0	0	**0**	0	0	0	0	4	0	4	0	1	0	11	9	**29**
682	Redding	Redding	0	0	0	0	**0**	0	0	0	0	89	20	3	128	102	101	52	13	**507**
683	Redding	Redding	84	8	7	0	**99**	0	0	0	0	0	0	5	0	1	0	7	8	**21**
684	Redding	Redding	19	0	99	0	**118**	0	0	0	0	4	0	0	155	427	21	11	0	**618**
685	Redding	Redding	0	0	0	0	**0**	0	0	0	0	11	0	0	5	8	114	41	13	**192**
686	Redding	Redding	11	4	63	0	**78**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
687	Redding	Redding	71	8	12	25	**116**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
688	Redding	Redding	5	0	0	0	**5**	0	0	0	0	84	10	8	11	322	96	49	10	**589**
689	Redding	Redding	0	0	0	0	**0**	0	0	0	0	1	0	3	0	0	42	20	0	**66**
690	Redding	Redding	17	47	34	0	**98**	0	0	0	0	0	0	2	20	103	15	30	27	**197**
691	Redding	Redding	6	0	0	0	**6**	0	0	0	0	3	3	1	26	122	70	27	10	**262**
692	Redding	Redding	27	4	0	0	**31**	0	0	0	0	16	16	33	12	81	57	76	30	**320**
693	Redding	Redding	2	8	152	0	**162**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
694	Redding	Redding	404	74	232	2	**712**	0	523	0	68	0	0	5	36	38	0	0	16	**163**
695	Redding	Redding	41	4	20	0	**65**	0	0	0	0	0	0	0	0	13	0	0	2	**15**
696	Redding	Redding	29	34	0	0	**63**	0	0	0	0	0	0	0	0	3	0	0	0	**3**
697	Redding	Redding	32	0	0	0	**32**	1681	0	0	141	0	0	0	0	6	5	24	0	**176**
698	Redding	Redding	187	0	0	1	**188**	0	0	0	0	0	0	0	0	4	0	13	1	**18**
699	Redding	Redding	6	0	0	0	**6**	0	0	0	0	0	0	0	0	0	0	75	0	**75**
701	Redding	Redding	1	16	5	0	**22**	0	0	0	0	184	0	0	0	0	20	15	0	**219**
702	Redding	Redding	0	0	0	0	**0**	0	0	0	0	56	0	0	0	9	53	15	0	**132**
703	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	2	3	6	146	3	2	**170**
704	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	4	0	0	0	**4**
705	Redding	Redding	2	0	0	0	**2**	0	0	0	0	18	0	7	0	15	76	9	0	**124**
706	Redding	Redding	47	0	0	0	**47**	743	0	0	45	0	0	0	0	0	0	0	2	**47**
707	Redding	Redding	5	0	0	0	**5**	0	0	0	0	52	3	1	17	24	9	19	8	**133**
708	Redding	Redding	4	0	0	0	**4**	0	0	0	0	12	5	0	13	6	23	23	5	**87**
709	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	7	8	4	0	7	0	**26**
710	Redding	Redding	6	12	0	0	**18**	0	0	0	0	31	16	21	1	49	21	1	2	**142**
711	Redding	Redding	1	0	0	150	**151**	0	0	0	0	23	0	49	9	38	35	117	102	**372**
712	Redding	Redding	270	265	131	1	**667**	0	0	0	0	25	0	59	1	60	67	75	50	**337**
713	Redding	Redding	118	44	0	0	**162**	0	0	0	0	0	0	6	0	3	21	12	6	**47**
714	Redding	Redding	212	12	9	0	**233**	531	0	0	23	0	0	1	0	8	0	2	5	**39**
715	Redding	Redding	259	10	42	0	**311**	0	0	0	0	0	0	2	0	6	0	21	7	**36**
716	Redding	Redding	188	0	0	0	**188**	0	0	0	0	0	0	9	3	4	0	0	2	**18**
717	Redding	Redding	150	19	106	0	**275**	0	0	62	57	0	0	1	22	2	0	0	0	**82**
718	Redding	Redding	26	0	24	0	**50**	0	79	0	54	10	0	21	0	27	32	55	13	**211**
721	Redding	Redding	50	4	0	0	**54**	554	0	0	30	0	0	0	4	4	0	5	4	**47**
722	Redding	Redding	5	8	0	0	**13**	0	0	0	0	0	0	4	291	60	3	5	4	**367**
723	Redding	Redding	60	20	24	0	**104**	0	0	0	0	0	0	1	41	0	8	6	1	**57**
724	Redding	Redding	3	0	0	0	**3**	0	0	0	0	0	0	0	0	8	4	16	10	**38**
725	Redding	Redding	26	119	147	0	**292**	0	0	0	0	0	0	0	17	7	13	3	0	**40**
726	Redding	Redding	0	0	0	0	**0**	1000	1461	0	169	0	0	0	0	0	0	0	0	**169**
727	Redding	Redding	185	3	82	22	**292**	0	0	0	0	0	0	14	13	38	36	22	9	**132**
728	Redding	Redding	1	104	8	0	**113**	0	0	0	0	22	0	9	40	63	19	28	21	**201**
729	Redding	Redding	0	40	0	0	**40**	0	0	0	0	0	0	0	4	12	0	0	2	**18**
730	Redding	Redding	2	0	157	0	**159**	0	0	0	0	0	0	5	2	11	1	10	0	**29**
731	Redding	Redding	552	67	343	1	**963**	0	199	0	31	0	0	3	267	20	31	31	4	**386**
732	Redding	Redding	162	100	110	2	**374**	0	0	0	0	17	0	3	3	32	57	59	8	**178**
733	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	2	0	5	0	**7**
741	Redding	Redding	17	0	0	1	**18**	0	0	0	0	2	0	0	0	8	4	0	0	**14**
751	Redding	Redding	326	26	0	0	**352**	0	0	0	0	0	0	6	1	6	0	0	3	**16**
752	Redding	Redding	208	46	0	0	**254**	0	0	0	0	0	0	0	1	6	0	0	1	**8**
753	Redding	Redding	106	0	0	0	**106**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
754	Redding	Redding	69	16	0	0	**85**	0	0	0	0	0	0	0	0	50	3	11	3	**67**
755	Redding	Redding	293	10	0	0	**303**	0	0	0	0	0	0	0	5	5	0	0	2	**12**
756	Redding	Redding	702	6	6	1	**715**	330	0	0	18	3	0	16	9	22	20	50	10	**148**
757	Redding	Redding	139	4	0	0	**143**	0	0	0	0	3	0	14	0	2	41	15	10	**85**
758	Redding	Redding	390	0	19	0	**408**	0	0	0	0	3	0	0	0	2	0	138	4	**147**
759	Redding	Redding	37	0	0	0	**37**	0	0	0	0	0	0	0	0	2	0	0	5	**7**
760	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	226	0	0	0	**226**

761	Redding	Redding	4	2	0	4	**10**	0	0	0	0	0	0	0	0	1	0	0	168	**169**
766	Redding	Redding	81	0	0	0	**81**	0	0	0	0	1	0	0	3	25	2	29	1	**61**
767	Redding	Redding	352	0	0	0	**352**	0	0	0	0	0	0	4	0	14	0	0	9	**27**
768	Redding	Redding	317	0	0	0	**317**	0	0	0	0	0	0	7	2	10	0	0	2	**21**
769	Redding	Redding	562	0	0	1	**563**	0	0	0	0	0	0	20	0	15	0	0	0	**35**
770	Redding	Redding	55	0	0	0	**55**	0	0	0	0	0	0	5	0	0	5	14	2	**26**
781	Redding	Redding	55	0	0	0	**55**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
782	Redding	Redding	718	0	0	0	**718**	0	0	0	0	0	0	0	10	3	0	0	0	**13**
783	Redding	Redding	436	0	0	0	**436**	500	0	0	47	0	0	8	0	1	0	0	1	**57**
784	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	3	0	0	4	**7**
785	Redding	Redding	2	0	0	0	**2**	0	0	0	0	4	8	14	0	103	5	43	0	**177**
786	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	37	0	400	0	0	33	**470**
787	Redding	Redding	102	0	0	0	**102**	0	0	0	0	0	0	53	0	157	0	0	0	**210**
788	Redding	Redding	0	0	0	0	**0**	0	0	0	0	14	0	46	0	16	5	35	16	**132**
791	Redding	Redding	1	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
792	Redding	Redding	2	0	0	0	**2**	0	0	0	0	0	297	93	0	19	7	308	51	**774**
793	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
794	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
795	Redding	Redding	0	0	0	148	**148**	0	0	0	0	0	0	150	0	13	41	30	14	**247**
796	Redding	Redding	35	0	0	6	**41**	0	0	0	0	0	0	5	0	52	13	26	12	**108**
951	Shasta County	Redding Sphere	37	0	0	9	**46**	0	0	0	0	0	0	2	0	0	0	0	1	**3**
952	Shasta County	Redding Sphere	107	0	0	6	**113**	0	0	0	0	0	0	2	0	8	1	2	5	**18**
953	Shasta County	Redding Sphere	93	10	0	15	**118**	0	0	0	0	0	0	0	0	7	0	4	5	**16**
954	Shasta County	Redding Sphere	30	4	0	51	**85**	0	0	0	0	0	0	130	0	6	17	28	2	**183**
955	Shasta County	Redding Sphere	31	16	0	77	**124**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
956	Shasta County	Redding Sphere	41	2	0	10	**53**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
957	Shasta County	Redding Sphere	15	0	0	2	**17**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
958	Shasta County	Redding Sphere	26	0	0	6	**32**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
959	Shasta County	Redding Sphere	192	0	0	3	**195**	0	0	0	0	0	0	0	0	1	0	0	0	**1**
961	Shasta County	Redding Sphere	25	4	0	21	**50**	0	0	0	0	0	3	0	0	1	0	0	0	**4**
962	Shasta County	Redding Sphere	18	2	9	13	**42**	0	0	0	0	0	0	3	0	3	1	2	0	**9**
963	Shasta County	Redding Sphere	30	2	0	12	**44**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
964	Shasta County	Redding Sphere	27	0	94	11	**132**	0	0	0	0	0	0	0	0	41	0	0	0	**41**
965	Shasta County	Redding Sphere	29	0	0	17	**46**	0	0	0	0	0	0	1	0	0	0	0	0	**1**
966	Shasta County	Redding Sphere	20	0	0	34	**54**	0	0	0	0	0	0	20	0	0	7	8	7	**42**
971	Shasta County	Redding Sphere	63	0	0	4	**67**	0	0	0	0	0	0	0	0	0	0	0	1	**1**
972	Shasta County	Redding Sphere	31	0	0	0	**31**	0	0	0	0	0	0	2	0	0	0	0	2	**4**
973	Shasta County	Redding Sphere	12	0	0	0	**12**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
974	Shasta County	Redding Sphere	33	0	0	1	**34**	0	0	0	0	0	19	6	10	0	0	18	5	**57**
975	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	16230	1,268	0	0	0	0	7	0	0	0	**1,275**
981	Shasta County	Redding Sphere	81	0	0	8	**89**	0	0	0	0	0	0	7	0	7	0	0	1	**15**
982	Shasta County	Redding Sphere	12	0	0	1	**13**	0	0	0	0	0	0	5	0	0	0	0	0	**5**
983	Shasta County	Redding Sphere	55	0	0	6	**61**	0	0	0	0	0	0	0	0	18	0	0	0	**18**
984	Shasta County	Redding Sphere	302	4	0	52	**358**	0	0	0	0	0	0	1	0	9	0	0	4	**14**
985	Shasta County	Redding Sphere	116	4	12	41	**173**	0	0	0	0	0	0	28	0	4	2	11	5	**50**
991	Shasta County	Redding Sphere	27	0	0	2	**29**	0	0	0	0	0	0	1	0	1	0	0	0	**2**
992	Shasta County	Redding Sphere	28	0	0	6	**34**	0	0	0	0	0	0	0	0	0	0	0	4	**4**
996	Shasta County	Redding Sphere	45	0	0	2	**47**	0	0	0	0	0	0	5	0	1	2	11	9	**28**
997	Shasta County	Redding Sphere	16	0	0	0	**16**	0	0	0	0	0	0	0	0	0	2	0	0	**2**
998	Shasta County	Redding Sphere	13	0	0	2	**15**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
999	Shasta County	Redding Sphere	22	4	0	5	**31**	1129	0	0	84	0	0	0	0	0	0	0	0	**84**
1000	Shasta County	Redding Sphere	15	0	0	9	**24**	0	0	0	0	0	310	58	0	2	3	11	2	**386**
1001	Shasta County	Redding Sphere	12	0	0	0	**12**	0	0	0	0	0	0	132	0	1	6	21	17	**177**
1002	Shasta County	Redding Sphere	67	12	0	57	**136**	0	0	0	0	0	0	1	11	1	2	0	1	**16**
1003	Shasta County	Redding Sphere	40	0	12	1	**53**	0	0	0	0	10	0	61	0	38	16	50	39	**214**
1006	Shasta County	Redding Sphere	2	0	0	0	**2**	0	0	0	0	0	0	0	0	1	6	11	0	**18**
1007	Shasta County	Redding Sphere	19	0	0	4	**23**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1011	Shasta County	Redding Sphere	86	8	0	15	**109**	0	0	0	0	0	0	1	0	0	0	1	0	**2**
1012	Shasta County	Redding Sphere	81	0	0	0	**81**	0	0	0	0	0	0	3	0	7	0	0	0	**10**
1013	Shasta County	Redding Sphere	93	0	0	4	**97**	0	0	0	0	0	0	15	0	2	0	0	0	**17**
1014	Shasta County	Redding Sphere	13	0	0	3	**16**	0	0	0	0	0	0	14	0	59	0	1	0	**73**
1015	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	1	0	**1**
1016	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1017	Shasta County	Redding Sphere	21	2	0	2	**25**	0	0	0	0	0	0	24	0	0	0	4	9	**37**
1018	Shasta County	Redding Sphere	11	4	0	0	**15**	0	0	0	0	0	0	0	0	0	0	400	7	**407**
1019	Shasta County	Redding Sphere	9	0	0	0	**9**	0	0	0	0	0	0	0	0	2	0	0	0	**2**
1021	Shasta County	Redding Sphere	57	0	0	0	**57**	0	0	0	0	0	0	1	0	2	0	1	0	**4**

1022	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1026	Shasta County	Redding Sphere	39	0	0	4	**43**	0	0	0	0	0	0	1	0	3	0	0	0	**4**
1027	Shasta County	Redding Sphere	89	2	0	3	**94**	0	0	0	0	14	0	146	12	76	53	68	51	**420**
1028	Shasta County	Redding Sphere	5	0	0	0	**5**	0	0	0	0	0	0	16	0	0	3	0	0	**19**
1029	Shasta County	Redding Sphere	3	0	0	0	**3**	0	0	0	0	0	0	16	0	60	0	12	9	**97**
1030	Shasta County	Redding Sphere	43	0	0	0	**43**	0	0	0	0	0	0	38	0	23	7	36	8	**112**
1031	Shasta County	Redding Sphere	544	0	0	25	**569**	0	0	0	0	68	0	59	0	8	2	7	1	**144**
1032	Shasta County	Redding Sphere	125	1	0	32	**158**	0	0	0	0	0	0	7	0	5	0	0	14	**26**
1033	Shasta County	Redding Sphere	426	0	0	6	**432**	0	0	0	0	0	0	1	0	6	0	17	2	**26**
1034	Shasta County	Redding Sphere	13	0	0	0	**13**	0	0	0	0	0	0	298	0	202	0	0	0	**500**
1036	Shasta County	Redding Sphere	19	4	0	12	**35**	0	0	0	0	0	0	6	0	0	0	0	0	**6**
1037	Shasta County	Redding Sphere	311	0	0	0	**311**	0	0	0	0	0	0	1	5	13	0	0	4	**23**
1038	Shasta County	Redding Sphere	45	8	0	2	**55**	0	0	0	0	2	0	4	0	2	3	6	4	**21**
1041	Shasta County	Redding Sphere	16	0	0	164	**180**	0	0	0	0	0	0	8	24	10	9	15	3	**68**
1042	Shasta County	Redding Sphere	115	32	0	156	**303**	0	0	0	0	0	0	61	0	0	4	17	38	**120**
1043	Shasta County	Redding Sphere	35	16	0	36	**87**	0	0	0	0	0	0	47	0	2	28	34	4	**114**
1044	Shasta County	Redding Sphere	101	0	0	20	**121**	0	0	0	0	2	20	194	0	45	155	22	11	**449**
Total 2040 (Redding + Redding Sphere)			39,532	4,746	8,735	2,933	**55,946**	16,793	7,273	17,958	3,380	3,821	6,305	7,386	8,335	12,070	7,978	10,660	2,855	**62,746**

			Dwelling Units					School Enrollment (students)			Employment (jobs)									
TAZ	JURIS	Community	Single-family SFDU	Multi-family (2-4 units) MF2_4DU	Multi-family (5+ units) MF5_DU	Mobile homes MHDU	Total dwelling units **TOT_DU**	Grade school Stugrd	High school Stuhgh	University Stuuni	Education Empedu	Food Empfood	Government Empgov	Industrial Empind	Medical Empmed	Office Empofc	Retail Empret	Service Empsvc	Other Empoth	Total employment **Emptot**
201	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0
202	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
203	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
204	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
205	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
206	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
207	Redding	Redding	0	0	35	0	**35**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
208	Redding	Redding	0	0	5	0	**5**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
209	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
210	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
211	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
212	Redding	Redding	0	0	10	0	**10**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
213	Redding	Redding	0	0	30	0	**30**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
214	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
215	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
216	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
217	Redding	Redding	-34	0	0	0	**-34**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
218	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	40	0	0	0	0	0	**40**
219	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
220	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
221	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
222	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
223	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
224	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
225	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
226	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
227	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
228	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
229	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
230	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
231	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
232	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
241	Redding	Redding	0	0	75	0	**75**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
242	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
243	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
244	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
245	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
246	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
247	Redding	Redding	0	0	35	0	**35**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
248	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
249	Redding	Redding	0	0	-1	0	**-1**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
250	Redding	Redding	0	0	40	0	**40**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
251	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
252	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
253	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
254	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
255	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
256	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
257	Redding	Redding	0	0	241	0	**241**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
258	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
259	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
260	Redding	Redding	0	0	-6	0	**-6**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
261	Redding	Redding	0	0	73	0	**73**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
262	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
263	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
264	Redding	Redding	0	0	-1	0	**-1**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
265	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
266	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
267	Redding	Redding	0	0	60	0	**60**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
268	Redding	Redding	0	0	30	0	**30**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

269	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
281	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
282	Redding	Redding	0	0	-65	0	**-65**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
283	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
284	Redding	Redding	0	0	50	0	**50**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
285	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
286	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
287	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
288	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
289	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
290	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
291	Redding	Redding	-28	0	-19	0	**-47**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
292	Redding	Redding	-5	0	42	0	**37**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
293	Redding	Redding	0	0	35	0	**35**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
296	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
297	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
298	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
299	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
300	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
301	Redding	Redding	0	0	-12	0	**-12**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
302	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
303	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
304	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
305	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
306	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
307	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
321	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
322	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
323	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
324	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
325	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
326	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
327	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
328	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
329	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
330	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
331	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
332	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
333	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
334	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
335	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
336	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
337	Redding	Redding	0	0	-1	0	**-1**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
338	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
339	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
340	Redding	Redding	0	0	-3	0	**-3**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
341	Redding	Redding	0	0	-7	0	**-7**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
342	Redding	Redding	13	0	0	0	**13**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
343	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
351	Redding	Redding	2	0	60	0	**62**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
352	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
353	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
354	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
355	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
356	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
357	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
358	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
359	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
360	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
361	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
362	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
371	Redding	Redding	0	0	1	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
372	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
373	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
374	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

375	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
376	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
377	Redding	Redding	0	0	59	0	**59**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
378	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
379	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
381	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
382	Redding	Redding	116	0	0	0	**116**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
383	Redding	Redding	116	0	0	0	**116**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
384	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
385	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
386	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
387	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
388	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
391	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
392	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
393	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
394	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
395	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
396	Redding	Redding	-80	0	2	0	**-78**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
397	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
398	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
399	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
400	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
406	Redding	Redding	-41	0	0	0	**-41**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
407	Redding	Redding	-50	0	0	0	**-50**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
408	Redding	Redding	-113	0	0	0	**-113**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
409	Redding	Redding	-72	0	0	0	**-72**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
410	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
411	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
412	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
413	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
414	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
415	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	50	0	0	0	0	0	**50**
416	Redding	Redding	0	0	3	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
417	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
418	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
419	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
420	Redding	Redding	37	0	2	0	**39**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
421	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
422	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
426	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
427	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
428	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
429	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
431	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
432	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
433	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
434	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
435	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
436	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
437	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
438	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
439	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
440	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
441	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
451	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
461	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
462	Redding	Redding	72	0	0	0	**72**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
463	Redding	Redding	125	0	0	0	**125**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
464	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
465	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
466	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
467	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
468	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
469	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

470	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
471	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
472	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
473	Redding	Redding	0	0	35	0	**35**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
474	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
475	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
476	Redding	Redding	0	0	120	0	**120**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
477	Redding	Redding	0	0	120	0	**120**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
478	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
481	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
482	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
483	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	3	0	0	3	**3**
484	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
491	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	-3	-3	**-3**
492	Redding	Redding	0	0	94	0	**94**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
493	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
494	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
495	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
496	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
497	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
498	Redding	Redding	7	0	0	0	**7**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
499	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
500	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
501	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
502	Redding	Redding	28	0	0	0	**28**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
503	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
504	Redding	Redding	0	0	-230	0	**-230**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
505	Redding	Redding	-65	0	0	0	**-65**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
506	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
511	Redding	Redding	0	0	-92	0	**-92**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
512	Redding	Redding	0	0	-94	0	**-94**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
513	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
514	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
515	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
521	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
522	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
523	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
524	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
525	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
526	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
527	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
528	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
529	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
530	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
532	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
541	Redding	Redding	-90	0	0	0	**-90**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
542	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
543	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
544	Redding	Redding	-86	0	-183	0	**-269**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
545	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	202	0	0	202	**202**
546	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
547	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
548	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
549	Redding	Redding	560	0	0	0	**560**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
550	Redding	Redding	-93	0	0	0	**-93**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
551	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
552	Redding	Redding	-115	0	0	0	**-115**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
553	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
554	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
555	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
556	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
557	Redding	Redding	-3	0	0	0	**-3**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
558	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
559	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
561	Redding	Redding	93	0	0	0	**93**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**

571	Redding	Redding	-56	0	0	0	**-56**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
572	Redding	Redding	-65	0	0	0	**-65**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
573	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
574	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
575	Redding	Redding	-369	0	-102	0	**-471**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
576	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
577	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
578	Redding	Redding	-270	0	0	0	**-270**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
579	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
581	Redding	Redding	42	0	0	0	**42**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
582	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
583	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
584	Redding	Redding	50	0	0	0	**50**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
585	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
586	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
587	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
588	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
589	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
590	Redding	Redding	0	0	0	0	**0**	0	300	0	15	0	0	0	0	0	0	0	0	**15**
601	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
602	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
603	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
604	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
605	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
606	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
607	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
608	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
609	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
610	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
611	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
612	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
613	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
614	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
621	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
622	Redding	Redding	32	0	0	0	**32**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
623	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
624	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
625	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
626	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
627	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
628	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
629	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
631	Redding	Redding	0	64	0	0	**64**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
632	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
633	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
634	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
635	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
636	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
637	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
638	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
639	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
640	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
641	Redding	Redding	0	0	1	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
642	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
643	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
644	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
646	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
647	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
648	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
649	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
650	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
651	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
652	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
653	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
654	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

655	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
656	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
657	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
658	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
659	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
660	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
661	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
662	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
663	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
664	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	34	0	0	-34	0	**0**
665	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
666	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
667	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
668	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
669	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
670	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	78	0	0	0	0	**78**
681	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	129	0	0	0	0	**129**
682	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
683	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
684	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
685	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
686	Redding	Redding	0	0	0	0	**0**	0	0	0	0	5	0	0	0	152	0	0	0	**157**
687	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
688	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
689	Redding	Redding	0	0	120	0	**120**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
690	Redding	Redding	0	0	180	0	**180**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
691	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
692	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
693	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
694	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
695	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
696	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
697	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
698	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	71	0	149	0	0	**220**
699	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
701	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
702	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
703	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
704	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	6	**6**
705	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
706	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
707	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
708	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
709	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
710	Redding	Redding	0	0	45	0	**45**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
711	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
712	Redding	Redding	0	0	60	0	**60**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
713	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
714	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
715	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
716	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
717	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
718	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
721	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
722	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
723	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
724	Redding	Redding	0	0	50	0	**50**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
725	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
726	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
727	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
728	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
729	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
730	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
731	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
732	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

733	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
741	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
751	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
752	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
753	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
754	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
755	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
756	Redding	Redding	0	0	0	0	**0**	0	0	0	0	8	0	0	0	0	30	0	0	**38**
757	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
758	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
759	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
760	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
761	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
766	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
767	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
768	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
769	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
770	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
781	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
782	Redding	Redding	385	0	0	0	**385**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
783	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
784	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
785	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
786	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
787	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
788	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
791	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
792	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	251	0	52	0	0	0	**303**
793	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
794	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	1080	0	0	0	0	0	**1080**
795	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
796	Redding	Redding	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
951	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
952	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
953	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
954	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
955	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
956	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
957	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
958	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
959	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
961	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
962	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
963	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
964	Shasta County	Redding Sphere	0	0	3	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
965	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
966	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
971	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
972	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
973	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
974	Shasta County	Redding Sphere	0	0	360	0	**360**	0	0	0	0	50	0	0	0	0	50	0	0	**100**
975	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
981	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
982	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
983	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
984	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
985	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
991	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
992	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
996	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
997	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
998	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
999	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1000	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1001	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**

1002	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1003	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1006	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1007	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1011	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1012	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1013	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1014	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1015	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1016	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1017	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	60	0	0	0	0	**60**
1018	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1019	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1021	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1022	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1026	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1027	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1028	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1029	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	52	0	0	40	**92**
1030	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1031	Shasta County	Redding Sphere	-151	0	0	0	**-151**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1032	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1033	Shasta County	Redding Sphere	-159	0	0	0	**-159**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1034	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1036	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1037	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1038	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1041	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1042	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1043	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1044	Shasta County	Redding Sphere	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Growth (Redding + Redding Sphere			-267	64	1,260	0	**1,057**	0	300	0	15	63	0	1,421	372	256	434	-34	43	**2,570**

Net change in growth for Redding (including sphere of influence) with 2045 General Plan compared to 2040 model.

Appendices

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Appendix 5.3-1 Air Quality and Greenhouse Gas Emissions Data

Land Use Statistics - Redding, Shasta County (City + SOI)

	Existing Conditions 2020	Proposed GP 2045	Net change Total	%
Housing Units	48,937	57,003	8,066	16%
Population	117,938	137,377	19,439	16%
Non-Residential SQFT	31,775,516	37,367,490	5,591,974	18%
Employment	55,579	65,360	9,781	18%
Service Population	**173,517**	**202,737**	**29,220**	17%

VMT and Population Growth

Comparison of the Change in Population and VMT in Redding (O-D Method)

Category	2020 Existing	2045 Proposed Project	Change from Existing	
			Change	%
Population	117,938	137,377	19,439	16%
Employment	55,579	65,360	9,781	18%
SP	173,517	202,737	29,220	17%
VMT per Day	1,297,028	1,826,513	529,485	41%
VMT/person	11.0	13.3	2	21%
VMT/SP	7.47	9.01	1.5	21%

SP = Service Population; VMT = Vehicle Miles Traveled

Redding Community GHG Emissions Inventory and Forecast

Category	MTCO2e/Year					
	Existing 2020		General Plan Update 2045		Change from Existing	
	TOTAL		TOTAL		TOTAL	
Building Electricity	126,196	21%	99,393	17%	-26,803	-21%
Building Natural Gas	84,924	14%	99,088	17%	14,164	17%
Building Propane Fuel	867	0%	1,010	0%	143	16%
Hearth Use	3,113	1%	3,626	1%	513	16%
On-Road Transportation	236,188	40%	220,596	38%	-15,592	-7%
Off-Road Vehicles and Equipment	24,513	4%	25,538	4%	1,025	4%
Solid Waste/Landfills	8,778	1%	10,256	2%	1,478	17%
Refrigerants	56,762	10%	66,118	11%	9,356	16%
Water Use	2,435	0%	1,290	0%	-1,145	-47%
Wastewater Treatment	51,295	9%	57,390	10%	6,095	12%
Total Community Emissions	**595,073**	100%	**584,307**	100%	**-10,766**	**-2%**
Service Population (SP)	173,517		202,737		29,220	17%
$MTCO_2e/SP$	3.4		2.9		-0.5	-16%

Notes: Emissions may not total to 100 percent due to rounding. Based on GWPs in the IPCC Fifth Assessment Report (AR5).

The emissions inventory and forecast is based on activity data for the City of Redding. This emissions inventory methodology identifies GHG emissions produced within a jurisdiction and captures direct and indirect emissions generated by land uses in a community. Unlike a "consumption-based" GHG emissions inventory, an activity-based emissions inventory does not capture lifecycle emissions associated with consumptions of goods. While a consumption-based emissions inventory approach may document GHG emissions associated with the final demand (regardless of where they were generated), a consumption-based emissions inventory excludes emissions associated with products produced within the juridiction but consumed elsewhere. For these reasons, an activity-based emissions inventory was determined to be most applicable for determining significant impacts under CEQA.

Note: Excludes GHG emissions natural gas use from Permitted Sources within the City.

City of Redding Community Criteria Air Pollutant Emissions Inventory and Forecast

Sources

[1] Source: GHD 2022; EMFAC2021 Version 1.0.2 Emissions Rates. Shasta County Subregion.

[2] Sources: PG&E 2023. CalEEMod User's Guide Appendix D for natural gas criteria air pollutant emission rates. Excludes criteria air pollutant emissions natural gas use from Permitted Sources within the City.

[3] Source: OFFROAD 2021.

[4] Source: CalEEMod 2022 User's Guide

[5] Source: CalEEMod 2022 User's Guide

Existing 2020

Phase	Existing (2020) Criteria Air Pollutant Emissions (pounds/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	150	1,710	3,927	14	116	55
Energy[2]	28	462	236	3	36	36
Offroad Equipment[3]	596	894	12,072	2	48	42
Consumer Products[4]	1,855	0	0	0	0	0
Hearth Use[5]	16,750	567	40,453	106	5,685	5,685
Total	**19,380**	**3,633**	**56,688**	**125**	**5,885**	**5,818**

Existing in 2045

Phase	Existing Land Uses (2045) Criteria Air Pollutant Emissions (pounds/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	22	436	1,298	9	90	34
Energy[2]	28	462	236	3	36	36
Offroad Equipment[3]	596	894	12,072	2	48	42
Consumer Products[4]	1,855	0	0	0	0	0
Hearth Use[5]	16,750	567	40,453	106	5,685	5,685
Total	**19,251**	**2,360**	**54,059**	**120**	**5,859**	**5,797**

General Plan Update (2045)

Phase	Project Criteria Air Pollutant Emissions (pounds/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	31	614	1,828	13	127	48
Energy[2]	32	539	276	3	42	42
Offroad Equipment[3]	679	922	13,894	2	49	43
Consumer Products[4]	2,198	0	0	0	0	0
Hearth Use[5]	19,511	660	47,120	124	6,622	6,622
Total	**22,451**	**2,736**	**63,117**	**142**	**6,840**	**6,755**

City of Redding Community Criteria Air Pollutant Emissions Inventory and Forecast

NET CHANGE from Existing Land Uses (2045)

Phase	Net Change Criteria Air Pollutant Emissions (pounds/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	9	178	530	4	37	14
Energy[2]	5	77	40	0	6	6
Offroad Equipment[3]	83	28	1,821	0	1	1
Consumer Products[4]	343	0	0	0	0	0
Hearth Use[5]	2,761	93	6,668	17	937	937
Total	**3,201**	**376**	**9,059**	**22**	**981**	**958**
South Coast AQMD Threshold	**137**	**137**	**-**	**-**	**137**	**137**
Exceeds Threshold	**Yes**	**Yes**	**No**	**No**	**Yes**	**Yes**

NET CHANGE from Existing Conditions (2020) - Friant Ranch

Phase	Net Change (2045-2020) Criteria Air Pollutant Emissions (pounds/day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Transportation[1]	-120	-1,095	-2,099	-1	10	-7
Energy[2]	5	77	40	0	6	6
Offroad Equipment[3]	83	28	1,821	0	1	1
Consumer Products[4]	343	0	0	0	0	0
Hearth Use[5]	2,761	93	6,668	17	937	937
Total	**3,072**	**-897**	**6,430**	**17**	**954**	**937**
Shasta County APCD Thresholds	**137**	**137**	**-**	**-**	**137**	**137**
Exceeds Threshold	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**

Note: Hearth emission estimates are not based on a 365-day year and are instead averaged among the 82 days per year homes are expected to use wood-burning hearths, consistent with the CalEEMod 2022 User's Guide.

Water and Wastewater

Water Demand for Redding Provided by Centerville Community Services District, Bella Vista Water District, and Redding Public Works

Water	Existing	Proposed Project*
Million Gallons Per Day	24.4	26.76
Acre Feet Per Year	27,350	29,971
MGY TOTAL	8,912	9,766

Wastewater	Existing**	Proposed Project*
MGD	12.0	13.58
AFY	13,442	15,212
MGY TOTAL	4,380	4,957

* Proposed Project estimates based on existing (2020) consumption rates combined with service population growth between existing year (2020) and horizon year (2045).

** Existing demand on the wastewater collection system was drawn from the City's 2022 Wastewater Master Plan for the year 2022.

Direct Emissions from Wastewater Treatment

Wastewater Treatment Type	BIOGENIC CO_2 MT/Gallon	CH_4 MT/Gallon	N_2O MT/Gallon	Non-Biogenic CO_2e MT/Gallon
Aerobic	3.90E-07	1.34E-09	8.52E-10	2.63E-07
Anaerobic (Facultative Lagoons)	3.90E-07	4.01E-07	8.52E-10	1.15E-05
Septic	0.00E+00	2.50E-07	8.52E-10	7.23E-06

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-35, Annual Wastewater Treatment Direct Emission Factors (short ton per gallon)

Anaerobic	Existing	Proposed Project
Non-Biogenic MT CO_2e TOTAL=	50,168	56,773

Water and Wastewater

Energy for Water Conveyance, Treatment, Distribution, and Wastewater Treatment

Location	Supply (Water Conveyance)	Water Treatment	Water Distribution	Total Water	Wastewater Treatment
	kWhr/million gallons				
South Coast	3,044	725	1,537	5,306	1,501
San Francisco Bay	1,182	754	2,998	4,934	1,542
Central Coast	1,577	754	1,537	3,868	1,542
Tulare Lake	1,506	748	166	2,420	1,519
North Coast	620	754	1,537	2,911	1,542
San Joaquin River	827	748	166	1,741	1,519
Colorado River	2,304	748	166	3,218	1,519
Sacramento River	698	748	166	1,612	1,519
South Lahontan	1,953	748	1,537	4,238	1,519
North Lathontan	541	748	166	1,455	1,519

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-32, Water Energy Intensity Factors by Hydrologic Region and Process (kWh per million gallon).

Redding Electric Utility

	Intensity factor			CO_2e
	CO_2 lbs/MWH[1]	CH_4 lbs/MWH[2]	N_2O lbs/MWH[2]	lbs/MWh
2020	371.689	0.033	0.004	**373.673**
2045	178.724	0.033	0.004	**180.708**
	Intensity factor			**CO_2e**
	CO_2 MTons/MWH[1]	CH_4 MTons/MWH[2]	N_2O MTons/MWH[2]	MTons/MWh
2021	0.169	1.50E-05	1.81E-06	**0.169**
2045	0.081	1.50E-05	1.81E-06	**0.082**

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-3, Electricity Utility Greenhouse Gas Emissions Factors.

Water and Wastewater

GHG Emissions from Energy Associated with Water/Wastewater

Energy Associated with Water Use	Existing Mwh	Proposed Project* Mwh
TOTAL Water Use	14,366	15,743
TOTAL Wastewater Generation	6,653	7,529
Total Water/Wastewater	21,019	23,272

GHG Emissions from Energy Associated with Water Use/Wastewater Generation	Existing $MTCO_2e$	Proposed Project* $MTCO_2e$
TOTAL Water Use	2,435	1,290
TOTAL Wastewater Generation	1,128	617
Total Water/Wastewater	3,563	1,908

Total GHGs

GHG Emissions from Water/Wastewater Use	Existing $MTCO_2e$	Proposed Project* $MTCO_2e$
TOTAL Water Use	2,435	1,290
TOTAL Wastewater Generation	51,295	57,390
Total Water/Wastewater	**53,730**	**58,681**

Energy Data Requests to RUE and PG&E

Redding Electric Utility (REU). January 13, 2023. Electricity data request to City of Redding transmitted via email (2019 through 2021).

Excludes natural gas use from Industrial (Permitted) Sources within the City.

Category	2019	2020	2021	**Average**
Other	47,483,863	54,353,597	56,488,036	**52,775,165**
Commercial	309,130,095	295,071,518	303,031,670	**302,411,094**
Industrial	12,295,388	11,516,246	11,856,124	**11,889,253**
Residential	357,920,972	383,360,091	391,093,280	**377,458,114**
Total kwh	726,830,318	744,301,452	762,469,110	**744,533,627**

Pacific Gas & Electric (PG&E). March 14, 2023. Natural Gas Use in Redding (2019-2021).

Category	2019	2020	2021	**Average**
Nonresidential	2,018,096	1,506,051	4,877,421	**2,800,523**
Residential	13,704,395	13,218,555	12,550,138	**13,157,696**
Total Therms	15,722,491	14,724,606	17,427,559	**15,958,219**

City of Redding

Energy Emission Factors - Power and Heating Fuels

Pacific Gas & Electric (Natural Gas)	lbs/MMBTU	lbs/MMBTU	lbs/MMBTU	lbs/MMBTU
	CO_2	CH_4	N_2O	**CO_2e**
All Years	117	1.04E-02	2.00E-04	**117.321**
	MT/Therm	**MT/Therm**	**MT/Therm**	**MT/Therm**
	CO_2	CH_4	N_2O	**CO_2e**
All Years	0.00531	4.72E-07	9.07E-09	**0.005**

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-4, Natural Gas Emissions Factors (pounds per MMBTU).

Redding Electric Utility (Electricity)				
	Intensity factor			**CO_2e**
	CO_2 lbs/MWH[1]	CH_4 lbs/MWH[2]	N_2O lbs/MWH[2]	lbs/MWh
2020	371.689	0.033	0.004	**373.673**
2045	178.724	0.033	0.004	**180.708**
	Intensity factor			**CO_2e**
	CO_2 MTons/MWH[1]	CH_4 MTons/MWH[2]	N_2O MTons/MWH[2]	MTons/MWh
2020	0.169	1.50E-05	1.81E-06	**0.169**
2045	0.081	1.50E-05	1.81E-06	**0.114**

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-3, Electricity Utility Greenhouse Gas Emissions Factors

Notes

In 2018, SB 100 (de León, 2018) was signed into law, which again increases the RPS to 60% by 2030 and encourages the state's electricity to come from carbon-free resources by 2045.

Propane	lbs/MMBTU	lbs/MMBTU	lbs/MMBTU	lbs/MMBTU
	CO_2	CH_4	N_2O	**CO_2e**
All Years	135	7.00E-03	1.00E-03	**135.957**
	MT/MMBTU	**MT/MMBTU**	**MT/MMBTU**	**MT/MMBTU**
	CO_2	CH_4	N_2O	**CO_2e**
All Years	0.00615	3.18E-07	4.54E-08	**0.006**

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-23, Hearth Emission Factors.

GHG Emissions from Energy Use

Actual Energy Use	RUE MWH/YR Average	PG&E Therms/YR Average
Other	52,775	
Commercial	302,411	2,800,523
Industrial	11,889	
Residential	377,458	13,157,696
City Total	744,534	15,958,219
	MTCO2e/Yr	
Other	8,945	
Commercial	51,258	14,903
Industrial	2,015	
Residential	63,978	70,021
City Total	126,196	84,924

Forecast Methodlogy	Existing	Proposed Project
Nonresidential - Square footage	31,775,516	37,367,490
Residential - Dwelling Units	48,937	57,003

MWH per SQFT per year	1.16E-02	Therms per SQFT per year	8.81E-02
MWH per Unit per year	7.71	Therms per Unit per year	268.9

Propane Energy Data for Redding

(Redding) Percent of Houses Using Bottled, Tank, or LP Gas for House Heating Fuels:[a]	2.2%
Statewide Propane Consumption in 2020 (MMBTU):[b]	58,200,000
Statewide Occupied Housing Units in 2020:[a]	13,103,114
(California) Percent of Houses Using Bottled, Tank, or LP Gas for House Heating Fuels:[a]	3.4%
Statewide per Housing Unit Annual Consumption (MMBTU):	130.64

Source:

[a.] U.S. Census Bureau. 2023. DP04 Selected Housing Characteristics: California and Redding City, California. 2020: ASC 5-Year Estimates Data Profiles, https://data.census.gov/table?q=DP04&g=0400000US06_1600000US0659920&tid=ACSDP5Y2020.DP04. Accessed March 3, 2023.

[b.] U.S. Energy Information Administration. 2023. California State Energy Profile, California Energy Consumption Estimates, 2020, https://www.eia.gov/state/print.php?sid=CA. Accessed March 3, 2023.

Electricity	Existing MWH	Proposed Project MWH
Nonresidential	367,076	431,675
Residential	377,458	439,672
Total	744,534	871,347
Electricity	**MTCO2e**	
Nonresidential	62,218	49,241
Residential	63,978	50,153
Total Electricity Emissions	**126,196**	**99,393**

Natural Gas	Existing Therms	Proposed Project Therms
Nonresidential	2,800,523	3,293,369
Residential	13,157,696	15,326,402
Total	15,958,219	18,619,771
Natural Gas	**MTCO2e**	
Nonresidential	14,903	17,526
Residential	70,021	81,562

Total Natural Gas Emissions	**84,924**	**99,088**

	Existing	Proposed Project
Propane	**MMBTU**	
Residential	140,647	163,829
Total	140,647	163,829
Propane	**MTCO2e**	
Residential	867	1,010
Total Propane Emissions	**867**	**1,010**

Criteria Air Pollutants from Natural Gas and Propane Use

Rate	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Natural Gas			lbs/MMBTU			
Nonresidential	0.0054	0.0980	0.0824	0.0006	0.0075	0.0075
Residential	0.0054	0.0922	0.0392	0.0006	0.0075	0.0075
Propane			lbs/MMBTU			
Residential	0.0110	0.1420	0.0820	0.0000	0.0080	0.0080

Sources:
California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-4, Natural Gas Emissions Factors (pounds per MMBTU).
California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-23, Hearth Emission Factors.

Propane Energy Data for Redding

(Redding) Percent of Houses Using Bottled, Tank, or LP Gas for House Heating Fuels:[a]	2.2%
Statewide Propane Consumption in 2020 (MMBTU):[b]	58,200,000
Statewide Occupied Housing Units in 2020:[a]	13,103,114
(California) Percent of Houses Using Bottled, Tank, or LP Gas for House Heating Fuels:[a]	3.4%
Statewide per Housing Unit Annual Consumption (MMBTU):	130.64

Source:

[a.] U.S. Census Bureau. 2023. DP04 Selected Housing Characteristics: California and Redding City, California. 2020: ASC 5-Year Estimates Data Profiles, https://data.census.gov/table?q=DP04&g=0400000US06_1600000US0659920&tid=ACSDP5Y2020.DP04. Accessed March 3, 2023.

[b.] U.S. Energy Information Administration. 2023. California State Energy Profile, California Energy Consumption Estimates, 2020, https://www.eia.gov/state/print.php?sid=CA. Accessed March 3, 2023.

Redding	Existing	Proposed Project
Natural Gas	**Therms**	
Nonresidential	2,800,523	3,293,369
Residential	13,157,696	15,326,402
Total	15,958,219	18,619,771

Redding	Existing	Proposed Project
Propane	**MMBTU**	
Residential	140,647	163,829
Total	140,647	163,829

Existing Emissions	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Natural Gas	**Existing lbs/day**					
Nonresidential	4	75	63	0	6	6
Residential	19	332	141	2	27	27
Propane	**Existing lbs/day**					
Residential	4	55	32	0	3	3
Total	28	462	236	3	36	36

Project 2045 Emissions	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Natural Gas	**Proposed Project lbs/day**					
Nonresidential	5	88	74	1	7	7
Residential	23	387	165	3	31	31
Propane	**Proposed Project lbs/day**					
Residential	5	64	37	0	4	4
Total	32	539	276	3	42	42

Wood-Burning Hearth Use for Residential Use

CalEEMod v2022.1 Default Values

		Percent of Fireplaces by Type					Fireplaces Operation		
Land Use Subtype	Air District	Wood	Natural Gas	Propane	Electric	None	Wood Mass*	Hours per Day	Days per Year
Multi-Family Housing	Shasta AQMD	35%	55%	0%	0%	10%	585.2(	3	82
Single Family Housing	Shasta AQMD	35%	55%	0%	0%	10%	585.2(	3	82
		Percent of Wood Stoves by Type					Wood Stove Operation		
Land Use Subtype	Air District	Conventional	Catalytic	Non-Catalytic	Pellet	None	Wood Mass*	Hours per Day	Days per Year
Multi-Family Housing	Shasta AQMD	0%	5%	5%	0%	90%	6837.6(	3	82
Single Family Housing	Shasta AQMD	0%	5%	5%	0%	90%	6837.6(	3	82

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-22, Hearth Usage by Analysis Level.

Wood Mass Source: California Air Resources Board (CARB). 2022. 2021-2022 Woodsmoke Reduction Program Calculator Tool. https://ww2.arb.ca.gov/resources/documents/cci-quantification-benefits-and-reporting-materials?corr. Accessed April 13, 2023.

Notes:

*Wood Mass expressed in pounds per fireplace/wood stove per year.

Hearth/Stove Type	Emission Factor Unit	ROG	NOx	CO	SOx	PM10	PM2.5	CO2-Bio	CO2-NBio	CH4	N2O	
Fireplaces Natural Gas*	Pound/MMBtu	0.005	0.092	0.039	0.000(	0.007	0.007	0.000(	116.977	0.010	0.000	
Fireplaces Propane	Pound/MMBtu	0.011	0.142	0.082	0.000(	0.008	0.008	0.000(	135.49(	0.007	0.001	
Fireplaces Wooc	Pound/Short ton wood	229.00(	2.60(	252.60(	0.40(	34.60(	34.60(	3400.00(	0.00(	0.00(	0.30(	
Woodstoves Catalytic	Pound/Short ton wood	15.00(	2.00(	104.40(	0.40(	20.40(	20.40(	2952.00(	0.00(	11.60(	0.00(	
Woodstoves Conventional	Pound/Short ton wood	53.00(	2.80(	230.80(	0.40(	30.60(	30.60(	2952.00(	0.00(	30.00(	0.00(	
Woodstoves Noncatalytic	Pound/Short ton wood	12.00(	2.00(	140.80(	0.40(	14.60(	14.60(	2952.00(	0.00(	16.00(	0.00(	
Woodstoves Pellet	Pound/Short ton wood	0.04(	3.80(	15.90(	0.32(	3.06(	3.06(	2952.00(	0.00(	16.00(	0.00(	

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-23, Hearth Emission Factors.

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Table G-4, Natural Gas Emissions Factors (pounds per MMBTU).

Notes:

*Fireplaces Natural Gas emission rates were updated to match those provided in Table G-4. The rest of the emission shown in this table correspond with the emission factors provided in Table G-23.

Existing Conditions Wood-Burning Hearth Use Estimates

		ROG	NOx	CO	SOx	PM10	PM2.5	CO2-Bio	CO2-NBio	CH4	N2O	
Parameters*		Pounds per Day										
Housing Units	48,93	-	-	-	-	-	-	-	-	-	-	
Fireplaces Propane		-	-	-	-	-	-	-	-	-	-	
Fireplaces Wood		13,995.92	158.91	15,438.29	24.45	2,114.67	2,114.67	207,799.63	-	-	18.34	
Woodstoves Catalytic		1,530.24	204.03	10,650.44	40.81	2,081.12	2,081.12	301,150.47	-	1,183.38	-	
Woodstoves Conventional		-	-	-	-	-	-	-	-	-	-	
Woodstoves Noncatalytic		1,224.1(	204.0(	14,363.8(	40.81	1,489.4(	1,489.4(	301,150.4(	-	1,632.2(	-	
Woodstoves Pellet		-	-	-	-	-	-	-	-	-	-	CO2e-NBio
Total Pounds per Day		16,750.3(	566.9(	40,452.5(	106.0(	5,685.2(	5,685.2(	810,100.5(	-	2,815.6(	18.34	83,696.6
Total Tons per Year**		686.7(	23.2(	1,658.5(	4.3(	233.0(	233.0(	30,131.3(	-	104.7(	0.68	3,113.0(

Notes:

*Fireplace Natural Gas esimtates are included in overall natural gas consumption estimates and are therefore not included here.

**GHG emission estimates are expressed in metric tons per year while criteria pollutant emission estimates are expressed in short tons per year.

Proposed General Plan 2045 Wood-Burning Hearth Use Estimates

		ROG	NOx	CO	SOx	PM10	PM2.5	CO2-Bio	CO2-NBio	CH4	N2O	
Parameters*		Pounds per Day										
Housing Units	57,00(	-	-	-	-	-	-	-	-	-	-	
Fireplaces Propane		-	-	-	-	-	-	-	-	-	-	
Fireplaces Wooc		16,302.7(	185.1(	17,982.8(	28.4(	2,463.2(	2,463.2(	242,050.0	-	-	21.3(	
Woodstoves Catalytic		1,782.4(	237.6(	12,405.8(	47.5(	2,424.1(	2,424.1(	350,787.3(	-	1,378.4(	-	
Woodstoves Conventional		-	-	-	-	-	-	-	-	-	-	
Woodstoves Noncatalytic		1,425.9(	237.6(	16,731.3(	47.5(	1,734.9(	1,734.9(	350,787.3(	-	1,901.2(	-	
Woodstoves Pellet		-	-	-	-	-	-	-	-	-	-	CO2e-NBio
Total Pounds per Day		19,511.2(	660.4(	47,120.1(	123.5(	6,622.2(	6,622.2(	943,624.7(	-	3,279.7(	21.3(	97,491.8(
Total Tons per Year**		799.9(	27.0(	1,931.9(	5.0(	271.5(	271.5(	35,097.7(	-	121.9(	0.7(	3,626.1(

Notes:

*Fireplace Natural Gas estimates are included in overall natural gas consumption estimates and are therefore not included here.

**GHG emission estimates are expressed in metric tons per year while criteria pollutant emission estimates are expressed in short tons per year.

Wood-Burning Hearth Use Estimates: Net Emissions Increase from Existing to Future (2045)

Parameters	ROG	NOx	CO	SOx	PM10	PM2.5	CO2-Bio	CO2-NBio	CH4	N2O	CO2e-NBio
Total Pounds per Day	2,760.8(	93.4(	6,667.5(	17.4(	937.0(	937.0(	133,524.1(	-	464.0(	3.0(	13,795.2(
Total Tons/Metric Tons per Year	113.2(	3.8(	273.3(	0.7(	38.4(	38.4(	4,966.3(	-	17.2(	0.1(	513.1(

Area Sources - Consumer Products

Residential Consumer Product Use

Emissions = EF x Building Area

Statewide (2008)	EF =	2.14E-05 lbs/sqft/day

Source: California Air Pollution Control Officer's Association (CAPCOA). 2022, April. California Emissions Estimator Model (CalEEMod) User's Guide Version 2022.1. https://www.caleemod.com/user-guide. Appendix D3 - Consumer Products Use.

AVERAGE HOUSING SQFT ASSUMPTIONS

Year Structure was Built	Percent of Housing Stock [d]	Average Square Feet of New Homes [a,b,c]	Average Square Feet (Weighted Contribution)
2020 and later	0.2%	1,986	4
2010 to 2019	3.3%	1,956	65
2000 to 2009	12.2%	1,968	240
1990 to 1999	17.8%	1,701	303
1980 to 1989	21.9%	1,819	398
1970 to 1979	18.6%	1,699	316
1960 to 1969	11.4%	1,715	196
1950 to 1959	9.6%	1,715	165
1940 to 1949	3.0%	1,715	51
1939 or earlier	2.0%	1,715	34
	100%		1,772

Sources/Notes:

a. U.S. Census Bureau. 2023. Annual Characteristics Tables, Median and Average Square Feet of Floor Area in New Single-Family Houses Completed - West, https://www.census.gov/construction/chars/current.html. Accessed February 23, 2023.

b. U.S. Census Bureau. 2023. Annual Characteristics Tables, Median and Average Square Feet of Floor Area in Multifamily Units Completed - West, https://www.census.gov/construction/chars/current.html. Accessed February 23, 2023.

c. U.S. Census Bureau. 2016. Characteristics of New Housing, Characteristics of New Single-Family Houses Completed, Median and Average Square Feet by Location. https://www.census.gov/construction/chars/pdf/c25ann2016.pdf

d. U.S. Census Bureau. 2021. American Community Survey, City of Redding, Table DP04, Selected Housing Characteristics, https://data.census.gov/table?tid=ACSDP5Y2021.DP04&g=0400000US06_1600000US0659920. Accessed February 23, 2023.

	Existing	Proposed Project
Housing Units	48,937	57,003
Residential SQFT	86,700,546	102,715,682
lbs VOC per day	1,855	2,198

Average Housing Size by Year

Year	Single-Family (Avg Square Feet)	Single-Family (Inventory, by Thousands)	Multi-Family (Avg Square Feet)	Multi-Family (Inventory, by Thousands)
2020 or later[a,b]	2448	-	1058	-
2021	2446	237	1057	112
2020	2449	223	1058	117
2010 to 2019[a,b]	2524	-	1081	-
2019	2450	221	1060	124
2018	2527	214	1081	107
2017	2548	180	1088	109
2016	2632	164	1095	108
2015	2615	147	1050	97
2014	2603	138	1081	99
2013	2523	129	1076	81
2012	2502	101	1052	78
2011	2457	91	1118	75
2010	2386	103	1107	87
2000 to 2009[a,b]	2404	-	1178	-
2009	2434	118	1249	94
2008	2508	190	1238	127
2007	2524	294	1272	171
2006	2488	415	1233	198
2005	2434	437	1158	190
2004	2352	409	1144	191
2003	2387	363	1155	185
2002	2350	325	1128	195
2001	2317	303	1128	189
2000	2244	286	1073	192
1990 to 1999[a,b]	2116	-	1069	-
1999	2234	310	1069	204
1998	2200	-	-	-
1997	2135	-	-	-
1996	2070	-	-	-
1995	2045	-	-	-
1994	2025	-	-	-
1993	2050	-	-	-
1992	2090	-	-	-
1991	2155	-	-	-
1990	2160	-	-	-
1980 to 1989[a]	1819	-	-	-
1989	2065	-	-	-
1988	1995	-	-	-
1987	1870	-	-	-
1986	1800	-	-	-
1985	1770	-	-	-
1984	1785	-	-	-
1983	1695	-	-	-
1982	1740	-	-	-
1981	1735	-	-	-
1980	1735	-	-	-
1970 to 1979[a]	1699	-	-	-
1979	1730	-	-	-
1978	1740	-	-	-
1977	1730	-	-	-
1976	1685	-	-	-
1975	1635	-	-	-
1974	1660	-	-	-
1973	1715	-	-	-
1960 to 1969[c]	1715	-	-	-
1950 to 1959[c]	1715	-	-	-
1940 to 1949[c]	1715	-	-	-
1939 or earlier[c]	1715	-	-	-

Sources:

a. U.S. Census Bureau. 2023. Annual Characteristics Tables, Median and Average Square Feet of Floor Area in New Single-Family Houses Completed - West, https://www.census.gov/construction/chars/current.html. Accessed February 23, 2023.

b. U.S. Census Bureau. 2023. Annual Characteristics Tables, Median and Average Square Feet of Floor Area in Multifamily Units Completed - West, https://www.census.gov/construction/chars/current.html. Accessed February 23, 2023.

c. U.S. Census Bureau. 2016. Characteristics of New Housing, Characteristics of New Single-Family Houses Completed, Median and Average Square Feet by Location. https://www.census.gov/construction/chars/pdf/c25ann2016.pdf

Area Sources

Source: OFFROAD2021. https://arb.ca.gov/emfac/emissions-inventory/ Shasta County Year 2020

OFFROAD Estimate based on:

Construction Equipment	Based on the percentage of housing permits in Redding compared to Shasta County (HUD 2021)
Light Commercial and Industrial Equipment	Based on the percentage of employment in Redding compared to Shasta County (GHD 2022, EDD 2022)
Lawn & Garden	Based on the percentage of housing units in Redding compared to Shasta County (GHD 2022, DOF 2021)

Sources:

Construction (Housing Permits)

Source: Housing and Urban Development (HUD). 2023, Accessed February 24. SOCDS Building Permits Database. https://socds.huduser.gov/permits/

Employment

Source: Employment Development Department (EDD). 2022. Unemployment Rates (Labor Force). https://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/areaselection.asp?tablename=labforce

Housing Units

Source: California Department of Finance (DOF). 2021, May 7. Report E-5: Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2020, with 2010 Benchmark. https://dof.ca.gov/forecasting/demographics/estimates/estimates-e5-2010-2020/

Existing 2020	**ROG Exhaust**	**NO_X Exhaust**	**CO Exhaust**	**SO_2 Exhaust**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**	**CO_2**
			(pounds per day)				**(metric tons per year)**
Construction Equipment	101	735	1,491	1	42	37	18,565
Lawn & Garden	318	42	3,641	0	4	3	1,954
Light Commercial / Industrial Equipment	176	117	6,940	0	2	2	3,994
TOTAL	596	894	12,072	2	48	42	24,513

Proposed Project 2045		**ROG Exhaust**	**NO_X Exhaust**	**CO Exhaust**	**SO_2 Exhaust**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**	**CO2**
				(pounds per day)				**(metric tons per year)**
	Forecast Adjusted for:	lbs/day						MT/yr
Construction Equipment	Similar to historic	101	735	1,491	1	42	37	18,565
Lawn & Garden	Proportional to housing growth	370	49	4,241	0	4	3	2,276
Light Commercial / Industrial Equipment	Proportional to employment growth	207	138	8,161	0	2	3	4,697
TOTAL		679	922	13,894	2	49	43	25,538

Shasta County OFFROAD2021

Source: OFFROAD 2021 https://arb.ca.gov/emfac/emissions-inventory/

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.3) Emissions Inventory
Region Type: County
Region: Shasta
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Construction

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	Fuel Consumption (g/yr)	ROG_tpd	NOx_tpd	CO_tpd	SOx_tpd	PM10_tpd	PM2.5_tpd	CO2_tpd	CO2e_MTY
Shasta	2020	Construction and Mining - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	1.96E+04	1.81E-04	2.26E-03	1.79E-03	5.58E-06	8.16E-05	7.51E-05	6.02E-01	1.99E+02
Shasta	2020	Construction and Mining - Cranes	Aggregate	Aggregate	Diesel	4.65E+04	1.09E-03	1.22E-02	7.17E-03	1.32E-05	5.60E-04	5.15E-04	1.43E+00	4.73E+02
Shasta	2020	Construction and Mining - Crawler Tractors	Aggregate	Aggregate	Diesel	1.15E+05	2.62E-03	2.87E-02	1.56E-02	3.27E-05	1.41E-03	1.30E-03	3.53E+00	1.17E+03
Shasta	2020	Construction and Mining - Excavators	Aggregate	Aggregate	Diesel	2.07E+05	2.56E-03	2.54E-02	2.27E-02	5.89E-05	1.05E-03	9.64E-04	6.36E+00	2.10E+03
Shasta	2020	Construction and Mining - Graders	Aggregate	Aggregate	Diesel	7.77E+04	1.96E-03	2.18E-02	9.72E-03	2.21E-05	9.40E-04	8.65E-04	2.39E+00	7.91E+02
Shasta	2020	Construction and Mining - Misc - Asphalt Pavers	Aggregate	Aggregate	Gasoline	1.11E+03	1.84E-04	1.61E-04	6.82E-03	2.79E-07	6.31E-05	4.77E-05	1.81E-02	5.99E+00
Shasta	2020	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Gasoline	7.09E+02	5.15E-05	7.82E-05	1.92E-03	1.80E-07	1.80E-05	1.36E-05	1.60E-02	5.30E+00
Shasta	2020	Construction and Mining - Misc - Bore/Drill Rigs	Aggregate	Aggregate	Diesel	4.37E+00	1.41E-05	8.90E-05	5.17E-05	1.28E-09	3.01E-06	2.27E-06	1.34E-04	4.45E-02
Shasta	2020	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Gasoline	4.25E+03	2.41E-03	1.35E-03	6.72E-02	1.11E-06	6.00E-04	4.53E-04	2.49E-06	8.25E-04
Shasta	2020	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregate	Aggregate	Diesel	6.42E+00	1.74E-05	1.08E-04	8.40E-05	1.87E-09	3.87E-06	2.92E-06	1.97E-04	6.54E-02
Shasta	2020	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Gasoline	5.31E+03	1.80E-03	1.29E-03	5.90E-02	1.37E-06	6.81E-04	5.15E-04	4.27E-02	1.42E+01
Shasta	2020	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregate	Aggregate	Diesel	2.49E+02	1.11E-05	7.03E-05	6.80E-05	9.67E-08	3.29E-06	2.95E-06	7.65E-03	2.53E+00
Shasta	2020	Construction and Mining - Misc - Cranes	Aggregate	Aggregate	Gasoline	5.73E+02	2.01E-05	5.46E-05	9.61E-04	1.45E-07	9.92E-07	7.49E-07	1.42E-02	4.71E+00
Shasta	2020	Construction and Mining - Misc - Crushing/Proc. Equipment	Aggregate	Aggregate	Gasoline	2.66E+01	1.23E-05	8.50E-06	4.26E-04	6.76E-09	5.17E-06	3.90E-06	1.60E-08	5.28E-06
Shasta	2020	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Gasoline	4.35E+02	2.53E-04	1.57E-04	6.34E-03	1.13E-07	6.65E-05	5.02E-05	9.25E-04	3.06E-01
Shasta	2020	Construction and Mining - Misc - Dumpers/Tenders	Aggregate	Aggregate	Diesel	5.13E-01	1.73E-06	1.09E-05	5.90E-06	1.50E-10	3.73E-07	2.82E-07	1.58E-05	5.23E-03
Shasta	2020	Construction and Mining - Misc - Excavators	Aggregate	Aggregate	Diesel	3.68E+00	1.24E-05	7.83E-05	4.23E-05	1.07E-09	2.63E-06	1.99E-06	1.13E-04	3.75E-02
Shasta	2020	Construction and Mining - Misc - Other	Aggregate	Aggregate	Gasoline	9.16E+02	8.28E-06	2.99E-05	7.70E-04	2.27E-07	1.64E-06	1.24E-06	2.28E-02	7.57E+00
Shasta	2020	Construction and Mining - Misc - Other	Aggregate	Aggregate	Diesel	1.36E+01	3.64E-05	2.29E-04	1.79E-04	3.98E-09	7.98E-06	6.03E-06	4.19E-04	1.39E-01
Shasta	2020	Construction and Mining - Misc - Pavers	Aggregate	Aggregate	Diesel	9.66E-01	3.25E-06	2.06E-05	1.11E-05	2.82E-10	7.10E-07	5.36E-07	2.97E-05	9.83E-03
Shasta	2020	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Gasoline	7.75E+03	3.85E-03	2.62E-03	1.13E-01	2.00E-06	1.18E-03	8.90E-04	1.63E-02	5.40E+00
Shasta	2020	Construction and Mining - Misc - Paving Equipment	Aggregate	Aggregate	Diesel	1.65E+00	5.54E-06	3.50E-05	1.89E-05	4.80E-10	1.17E-06	8.87E-07	5.06E-05	1.68E-02
Shasta	2020	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Gasoline	2.81E+03	1.59E-03	1.01E-03	4.45E-02	7.26E-07	3.99E-04	3.02E-04	1.70E-06	5.63E-04
Shasta	2020	Construction and Mining - Misc - Plate Compactors	Aggregate	Aggregate	Diesel	4.60E+00	1.18E-05	7.38E-05	6.18E-05	1.34E-09	2.60E-06	1.96E-06	1.42E-04	4.69E-02
Shasta	2020	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Gasoline	3.74E+03	8.40E-04	7.22E-04	2.89E-02	9.10E-07	2.86E-04	2.16E-04	5.14E-02	1.70E+01
Shasta	2020	Construction and Mining - Misc - Rollers	Aggregate	Aggregate	Diesel	2.82E+01	8.17E-05	5.14E-04	3.57E-04	8.24E-09	1.77E-05	1.34E-05	8.69E-04	2.88E-01
Shasta	2020	Construction and Mining - Misc - Rough Terrain Forklifts	Aggregate	Aggregate	Gasoline	4.26E+03	1.28E-04	3.94E-04	5.22E-03	1.01E-06	7.19E-06	5.43E-06	1.03E-01	3.41E+01
Shasta	2020	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Gasoline	2.23E+03	7.26E-05	1.95E-04	3.25E-03	5.28E-07	3.73E-06	2.82E-06	5.36E-02	1.78E+01
Shasta	2020	Construction and Mining - Misc - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	6.06E-01	2.04E-06	1.29E-05	6.96E-06	1.77E-10	4.33E-07	3.27E-07	1.86E-05	6.17E-03
Shasta	2020	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Gasoline	7.97E+01	3.83E-05	2.77E-05	1.28E-03	2.04E-08	1.54E-05	1.16E-05	4.92E-08	1.63E-05
Shasta	2020	Construction and Mining - Misc - Signal Boards	Aggregate	Aggregate	Diesel	1.70E+02	1.88E-04	1.18E-03	9.92E-04	6.36E-08	4.18E-05	3.18E-05	5.24E-03	1.74E+00
Shasta	2020	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Gasoline	8.20E+03	1.25E-03	9.59E-04	4.19E-02	2.12E-06	4.13E-04	3.12E-04	1.47E-01	4.87E+01
Shasta	2020	Construction and Mining - Misc - Skid Steer Loaders	Aggregate	Aggregate	Diesel	1.93E+02	6.52E-04	4.10E-03	2.21E-03	5.63E-08	1.44E-04	1.09E-04	5.93E-03	1.96E+00
Shasta	2020	Construction and Mining - Misc - Surfacing Equipment	Aggregate	Aggregate	Gasoline	3.42E+03	2.07E-03	1.47E-03	5.38E-02	8.75E-07	6.22E-04	4.70E-04	2.07E-06	6.85E-04
Shasta	2020	Construction and Mining - Misc - Tampers/Rammers	Aggregate	Aggregate	Gasoline	4.54E+02	1.91E-04	1.48E-04	7.32E-03	1.18E-07	1.04E-04	7.87E-05	3.21E-07	1.06E-04
Shasta	2020	Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Gasoline	1.43E+03	2.85E-05	8.00E-05	2.02E-03	3.35E-07	2.41E-06	1.82E-06	3.46E-02	1.15E+01

Shasta County OFFROAD2021

Source: OFFROAD 2021 https://arb.ca.gov/emfac/emissions-inventory/

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.3) Emissions Inventory
Region Type: County
Region: Shasta
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Shasta	2020 Construction and Mining - Misc - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	1.76E+01	5.91E-05	3.74E-04	2.02E-04	5.13E-09	1.27E-05	9.57E-06	5.40E-04	1.79E-01
Shasta	2020 Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Gasoline	6.89E+03	1.51E-03	1.27E-03	5.32E-02	1.73E-06	5.26E-04	3.98E-04	9.43E-02	3.12E+01
Shasta	2020 Construction and Mining - Misc - Trenchers	Aggregate	Aggregate	Diesel	2.37E+01	7.44E-05	4.69E-04	2.85E-04	6.91E-09	1.59E-05	1.21E-05	7.29E-04	2.41E-01
Shasta	2020 Construction and Mining - Off-Highway Tractors	Aggregate	Aggregate	Diesel	4.37E+04	8.57E-04	7.06E-03	6.04E-03	1.24E-05	3.81E-04	3.50E-04	1.34E+00	4.45E+02
Shasta	2020 Construction and Mining - Off-Highway Trucks	Aggregate	Aggregate	Diesel	2.62E+05	4.18E-03	4.59E-02	2.46E-02	7.46E-05	1.55E-03	1.43E-03	8.06E+00	2.67E+03
Shasta	2020 Construction and Mining - Other	Aggregate	Aggregate	Diesel	5.86E+04	1.12E-03	1.15E-02	7.47E-03	1.67E-05	5.67E-04	5.22E-04	1.80E+00	5.96E+02
Shasta	2020 Construction and Mining - Pavers	Aggregate	Aggregate	Diesel	1.38E+04	2.54E-04	2.61E-03	2.04E-03	3.92E-06	1.40E-04	1.29E-04	4.24E-01	1.40E+02
Shasta	2020 Construction and Mining - Paving Equipment	Aggregate	Aggregate	Diesel	8.02E+03	1.37E-04	1.44E-03	1.13E-03	2.28E-06	7.06E-05	6.50E-05	2.47E-01	8.16E+01
Shasta	2020 Construction and Mining - Rollers	Aggregate	Aggregate	Diesel	3.58E+04	8.50E-04	6.91E-03	6.87E-03	1.02E-05	4.09E-04	3.77E-04	1.10E+00	3.64E+02
Shasta	2020 Construction and Mining - Rough Terrain Forklifts	Aggregate	Aggregate	Diesel	3.88E+04	4.25E-04	5.35E-03	7.15E-03	1.11E-05	2.22E-04	2.04E-04	1.19E+00	3.95E+02
Shasta	2020 Construction and Mining - Rubber Tired Dozers	Aggregate	Aggregate	Diesel	2.29E+04	7.70E-04	7.84E-03	5.45E-03	6.52E-06	3.91E-04	3.60E-04	7.05E-01	2.34E+02
Shasta	2020 Construction and Mining - Rubber Tired Loaders	Aggregate	Aggregate	Diesel	3.15E+05	6.16E-03	6.32E-02	3.82E-02	8.97E-05	2.80E-03	2.58E-03	9.70E+00	3.21E+03
Shasta	2020 Construction and Mining - Scrapers	Aggregate	Aggregate	Diesel	2.05E+05	3.97E-03	4.64E-02	2.83E-02	5.84E-05	1.87E-03	1.72E-03	6.31E+00	2.09E+03
Shasta	2020 Construction and Mining - Skid Steer Loaders	Aggregate	Aggregate	Diesel	3.76E+04	4.83E-04	5.76E-03	7.18E-03	1.07E-05	2.44E-04	2.25E-04	1.16E+00	3.83E+02
Shasta	2020 Construction and Mining - Surfacing Equipment	Aggregate	Aggregate	Diesel	4.31E+03	4.76E-05	6.47E-04	3.73E-04	1.23E-06	2.43E-05	2.24E-05	1.33E-01	4.39E+01
Shasta	2020 Construction and Mining - Tractors/Loaders/Backhoes	Aggregate	Aggregate	Diesel	2.87E+05	5.25E-03	5.19E-02	5.22E-02	8.17E-05	2.96E-03	2.72E-03	8.83E+00	2.92E+03
Shasta	2020 Construction and Mining - Trenchers	Aggregate	Aggregate	Diesel	1.19E+04	3.77E-04	2.85E-03	2.26E-03	3.37E-06	1.85E-04	1.70E-04	3.65E-01	1.21E+02
TOTAL CONSTRUCTION OFFROAD					1.87E+06	5.08E-02	3.69E-01	7.49E-01	5.29E-04	2.11E-02	1.86E-02	5.63E+01	1.86E+04
ESTIMATED REDDING (g/yr; tpd; MTY)					1,858,132	5.05E-02	3.67E-01	7.46E-01	5.27E-04	2.10E-02	1.85E-02	5.61E+01	18,565
ESTIMATED REDDING (lbs/day)						101	735	1,491	1	42	37		

TOTAL HOUSING PERMITS: https://socds.huduser.gov/permits/

	2018	2019	2020	2021	2022	Average
Shasta County	103	294	214	201	375	237
Redding	103	294	214	201	237	236
Percent in the City	100.0%	100.0%	100.0%	100.0%	63.2%	99.6%

Shasta County OFFROAD2021

Source: OFFROAD 2021 https://arb.ca.gov/emfac/emissions-inventory/

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.3) Emissions Inventory
Region Type: County
Region: Shasta
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Lawn and Garden

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	Fuel Consumption (g/yr)	ROG_tpd	NOx_tpd	CO_tpd	SOx_tpd	PM10_tpd	PM2.5_tpd	CO2_tpd	CO2e_MTY
Shasta	2020	Lawn and Garden - Misc - Chainsaws	Aggregate	Aggregate	Gasoline	4.03E+04	4.58E-02	1.49E-03	1.35E-01	1.03E-05	5.88E-04	4.43E-04	7.09E-01	2.35E+02
Shasta	2020	Lawn and Garden - Misc - Chainsaws	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Chainsaws Preempt	Aggregate	Aggregate	Gasoline	2.37E+04	4.04E-02	1.41E-03	7.29E-02	6.07E-06	3.16E-04	2.39E-04	3.82E-01	1.26E+02
Shasta	2020	Lawn and Garden - Misc - Chainsaws Preempt	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Gasoline	4.25E+02	6.25E-05	2.33E-05	2.93E-03	1.11E-07	2.16E-07	1.63E-07	6.58E-03	2.18E+00
Shasta	2020	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Diesel	2.53E+01	9.32E-07	5.89E-06	3.18E-06	7.39E-09	1.98E-07	1.50E-07	7.79E-04	2.58E-01
Shasta	2020	Lawn and Garden - Misc - Chippers/Stump Grinders	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Lawn Mowers	Aggregate	Aggregate	Gasoline	9.78E+04	1.41E-02	7.87E-03	5.93E-01	2.64E-05	3.51E-04	2.65E-04	1.64E+00	5.43E+02
Shasta	2020	Lawn and Garden - Misc - Lawn Mowers	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Leaf Blowers/Vacuums	Aggregate	Aggregate	Gasoline	1.05E+05	7.66E-02	2.71E-03	3.84E-01	2.68E-05	1.13E-03	8.51E-04	1.95E+00	6.47E+02
Shasta	2020	Lawn and Garden - Misc - Leaf Blowers/Vacuums	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Other	Aggregate	Aggregate	Gasoline	2.04E+03	2.49E-04	1.04E-04	1.36E-02	5.31E-07	1.05E-06	7.95E-07	3.26E-02	1.08E+01
Shasta	2020	Lawn and Garden - Misc - Other	Aggregate	Aggregate	Diesel	1.27E+01	4.08E-07	2.83E-06	2.25E-06	3.69E-09	9.88E-08	7.47E-08	3.89E-04	1.29E-01
Shasta	2020	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Gasoline	1.79E+05	2.72E-02	1.35E-02	1.29E+00	4.60E-05	1.72E-04	1.30E-04	2.68E+00	8.88E+02
Shasta	2020	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Diesel	1.02E+04	3.60E-04	2.34E-03	1.45E-03	2.97E-06	7.98E-05	6.03E-05	3.13E-01	1.04E+02
Shasta	2020	Lawn and Garden - Misc - Rear Engine Riding Mowers	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Snowblowers	Aggregate	Aggregate	Gasoline	4.21E+03	5.27E-04	2.62E-04	3.22E-02	1.13E-06	2.61E-06	1.97E-06	6.05E-02	2.00E+01
Shasta	2020	Lawn and Garden - Misc - Snowblowers	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Tillers	Aggregate	Aggregate	Gasoline	1.89E+03	5.94E-04	9.85E-05	1.10E-02	5.09E-07	1.68E-06	1.27E-06	3.13E-02	1.04E+01
Shasta	2020	Lawn and Garden - Misc - Tillers	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Trimmers/Edgers/Brush Cutters	Aggregate	Aggregate	Gasoline	7.91E+04	4.91E-02	3.02E-03	2.97E-01	2.02E-05	4.30E-04	3.25E-04	1.48E+00	4.92E+02
Shasta	2020	Lawn and Garden - Misc - Trimmers/Edgers/Brush Cutters	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Lawn and Garden - Misc - Wood Splitters	Aggregate	Aggregate	Gasoline	1.74E+04	2.96E-03	1.27E-03	1.15E-01	4.54E-06	1.73E-05	1.31E-05	2.75E-01	9.11E+01
TOTAL LAWN & GARDEN						5.62E+05	2.58E-01	3.41E-02	2.95E+00	1.46E-04	3.08E-03	2.33E-03	9.57E+00	3.17E+03
ESTIMATED REDDING						346,332	0	0	2	0	0	0	6	1,954
ESTIMATED REDDING (lbs/day)							318	42	3,641	0	4	3	11,804	

HOUSING UNITS	Existing
Housing Units in Shasta County (2020)	79,380
Housing Units in Redding	48,937
Percent in the City	61.6%

Shasta County OFFROAD2021

Source: OFFROAD 2021 https://arb.ca.gov/emfac/emissions-inventory/

Construction includes: Over 25 horsepower, self-propelled, diesel equipment only subjected to In-Use Regulation; AND Under 25 horsepower equipment not subject to the In-Use Regulation

Model Output: OFFROAD2021 (v1.0.3) Emissions Inventory
Region Type: County
Region: Shasta
Calendar Year: 2020
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2021 Equipment Types
Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Light Commercial and Industrial

Region	Calendar Year	Vehicle Category	Model Year	Horsepower Bin	Fuel	Fuel Consumption (g/yr)	ROG_tpd	NOx_tpd	CO_tpd	SOx_tpd	PM10_tpd	PM2.5_tpd	CO2_tpd	CO2e_MTY
Shasta	2020	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Gasoline	1.63E+05	1.91E-02	1.24E-02	1.08E+00	4.14E-05	8.44E-05	9.04E-05	2.61E+00	8.63E+02
Shasta	2020	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Diesel	5.89E+03	2.49E-04	1.35E-03	1.53E-03	2.23E-06	7.34E-05	6.88E-05	1.81E-01	5.99E+01
Shasta	2020	Light Commercial - Misc - Air Compressors	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Light Commercial - Misc - Gas Compressors	Aggregate	Aggregate	Nat Gas	7.52E+04	0.00E+00	4.29E-03	5.02E-02	0.00E+00	0.00E+00	0.00E+00	1.37E+00	4.54E+02
Shasta	2020	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Gasoline	2.66E+05	5.62E-02	2.24E-02	1.59E+00	6.91E-05	2.22E-04	2.59E-04	4.41E+00	1.46E+03
Shasta	2020	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Diesel	2.59E+04	8.44E-04	5.85E-03	4.87E-03	9.01E-06	2.36E-04	2.51E-04	7.98E-01	2.64E+02
Shasta	2020	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Light Commercial - Misc - Generator Sets	Aggregate	Aggregate	Nat Gas	2.40E+03	0.00E+00	1.64E-04	1.25E-03	0.00E+00	0.00E+00	0.00E+00	4.47E-02	1.48E+01
Shasta	2020	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Gasoline	1.10E+05	1.39E-02	6.18E-03	7.90E-01	2.81E-05	3.59E-05	4.73E-05	1.66E+00	5.50E+02
Shasta	2020	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Diesel	1.19E+02	3.70E-06	2.96E-05	2.36E-05	4.59E-08	1.08E-06	1.19E-06	3.67E-03	1.22E+00
Shasta	2020	Light Commercial - Misc - Pressure Washers	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Gasoline	3.87E+04	4.20E-03	2.47E-03	1.63E-01	9.86E-06	3.90E-05	3.50E-05	7.60E-01	2.52E+02
Shasta	2020	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Diesel	1.44E+04	5.07E-04	3.26E-03	2.86E-03	5.05E-06	1.38E-04	1.45E-04	4.43E-01	1.47E+02
Shasta	2020	Light Commercial - Misc - Pumps	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Shasta	2020	Light Commercial - Misc - Welders	Aggregate	Aggregate	Gasoline	7.55E+04	9.48E-03	5.08E-03	4.68E-01	1.93E-05	6.03E-05	6.10E-05	1.25E+00	4.14E+02
Shasta	2020	Light Commercial - Misc - Welders	Aggregate	Aggregate	Diesel	3.01E+04	1.20E-03	6.82E-03	7.09E-03	1.11E-05	3.46E-04	3.34E-04	9.24E-01	3.06E+02
Shasta	2020	Light Commercial - Misc - Welders	Aggregate	Aggregate	Electric	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL LIGHT COMMERCIAL + INDUSTRIAL OFFROAD						8.07E+05	1.06E-01	7.02E-02	4.16E+00	1.95E-04	1.24E-03	1.29E-03	1.45E+01	4.79E+03
ESTIMATED REDDING						6.74E+05	8.82E-02	5.86E-02	3.47E+00	1.63E-04	1.03E-03	1.08E-03	1.21E+01	3,994
ESTIMATED REDDING (lbs/day)							176	117	6,940	0	2	2	24,122	

EMPLOYMENT: http://lehd.ces.census.gov/	2020
Employment in Shasta County (2020)	66,600
Employment in Redding	55,579
Percent in the City	83%

Solid Waste Disposal

Source: CalRecycle Recycling and Disposal Reporting System Report (Overall Jurisdiction Tons For Disposal and Disposal Related Uses)

Waste Generated Within Redding

Year	Landfill (tons)
2020	110,917
2021	108,677
Total	219,594
Annual Average	109,797

Service Population in Redding

Existing 2020	Proposed GP 2045	% Increase
173,517	202,737	17%

Notes:

Source: CalRecycle. 2023, February 27 (accessed). RDRS Report 1: Overall Jurisdiction Tons for Disposal and Disposal Related Uses. https://www2.calrecycle.ca.gov/RecyclingDisposalReporting/Reports/OverallJurisdictionTonsForDisposal

CARB's Landfill Emission Tool (version 1.09.24.2021) CH_4 Model Results.

Based on the West Central Landfill (Shasta County) K-Value

	EXISTING		Proposed Project	
	CH_4 Tons	$MTCO_2e$ w/LFG Capture 2020 TOTAL	CH_4 Tons	$MTCO_2e$ w/LFG Capture 2045 TOTAL
Year 1	298	1,895	349	2,214
Year 2	2,071	13,149	2,419	15,363
Year 3 (PEAK)	**2,324**	**14,758**	**2,715**	**17,243**
Year 4	2,278	14,465	2,662	16,901
Year 5	2,233	14,179	2,609	16,567
Year 6	2,189	13,898	2,557	16,239
Year 7	2,145	13,623	2,507	15,917
Year 8	2,103	13,353	2,457	15,602
Year 9	2,061	13,089	2,408	15,293
Year 10	2,020	12,830	2,361	14,990
Year 11	1,980	12,576	2,314	14,693
Year 12	1,941	12,327	2,268	14,402
Year 13	1,903	12,083	2,223	14,117
Year 14	1,865	11,843	2,179	13,838
Year 15	1,828	11,609	2,136	13,564
Year 16	1,792	11,379	2,094	13,295
Year 17	1,756	11,154	2,052	13,032
Year 18	1,722	10,933	2,012	12,774
Year 19	1,688	10,716	1,972	12,521
Year 20	1,654	10,504	1,933	12,273
Year 21	1,621	10,296	1,894	12,030
Year 22	1,589	10,092	1,857	11,792
Year 23	1,558	9,892	1,820	11,558
Year 24	1,527	9,696	1,784	11,329
Year 25	1,497	9,504	1,749	11,105
Year 26	1,467	9,316	1,714	10,885
Year 27	1,438	9,132	1,680	10,670
Year 28	1,410	8,951	1,647	10,458
Year 29	1,382	8,774	1,614	10,251
Year 30	1,354	8,600	1,582	10,048
Year 31	1,327	8,430	1,551	9,849
Year 32	1,301	8,263	1,520	9,654
Year 33	1,275	8,099	1,490	9,463
Year 34	1,250	7,939	1,461	9,276
Year 35	1,225	7,782	1,432	9,092
Year 36	1,201	7,628	1,403	8,912
Year 37	1,177	7,476	1,376	8,736
Year 38	1,154	7,328	1,348	8,563
Year 39	1,131	7,183	1,322	8,393
Year 40	1,109	7,041	1,296	8,227

Year 41	1,087	6,902		1,270	8,064	
Year 42	1,065	6,765		1,245	7,904	
Year 43	1,044	6,631		1,220	7,748	
Year 44	1,024	6,500		1,196	7,594	
Year 45	1,003	6,371		1,172	7,444	
Year 46	983	6,245		1,149	7,297	
Year 47	964	6,121		1,126	7,152	
Year 48	945	6,000		1,104	7,010	
Year 49	926	5,881		1,082	6,872	
Year 50	908	5,765		1,061	6,736	
Year 51	890	5,651		1,040	6,602	
Year 52	872	5,539		1,019	6,471	
Year 53	855	5,429		999	6,343	
Year 54	838	5,322		979	6,218	
Year 55	821	5,216		960	6,095	
Year 56	805	5,113		941	5,974	
Year 57	789	5,012		922	5,856	
Year 58	774	4,912		904	5,740	
Year 59	758	4,815		886	5,626	
Year 60	743	4,720		868	5,515	
60 YR Avg (Average Annual)	**1,382**	**8,778**		**1,615**	**10,256**	

Waste. Landfill Emissions Tool Version 1.09.24.2021. and data from CalRecycle. Biogenic CO_2 emissions are not included.

Notes

LFG capture Efficiency	0.75	AR5 CH_4 GWP	28	Tons to metric Tons	0.9071847

Waste generation based on two year average waste commitment for Redding obtained from CalRecycle.

Significant CH_4 production typically begins one or two years after waste disposal in a landfill and continues for 10 to 60 years or longer. Consequently, the highest CH_4 emissions from waste disposal in a given year are reported.

Decomposition based on an average annual rainfall of approximately 44 inches per year average (anaerobic decomposition factor (k) of 0.057) for Shasta County.

The Landfill Gas Estimator only includes the landfill gas (LFG) capture in the landfill gas heat output and therefore the reduction and emissions from landfill gas capture are calculated separately. Assumes 75 percent of fugitive GHG emissions are captured within the landfill's Landfill Gas Capture System with a landfill gas capture efficiency of 75 percent. The Landfill gas capture efficiency is based on the California Air Resources Board's (CARB) Local Government Operations Protocol (LGOP), Version 1.3.

Biogenic CO_2 emissions are not included.

Refrigerants

	Refrigerants	$MTCO_2e$	
	2020 Statewide Refrigerant Use (AR4)	$MTCO_2e$	19,029,283
	US Census April 2020 California Population	People	39,538,223
		MT/person	0.48

	Existing	Proposed Project
Population	117,938	137,377
MTCO2e	56,762	66,118

Source: CARB. Greenhouse Gas Emissions Inventory Query Tool for years 2000 to 2019 (14th Edition) - Query Results. Main Activity: Use of substitutes for ozone depleting substances Activity Subset: Refrigeration and Air Conditioning. AR 4. https://ww2.arb.ca.gov/applications/greenhouse-gas-emission-inventory-0

City of Redding VMT

Source: GHD 2022.

	Daily VMT		Total Daily VMT	Total with RTAC	Service Population	VMT/SP	VMT/SP w RTAC
	IX + XI	II					
Existing Conditions (Year 2020)	308,584	1,142,736	1,451,320	1,297,028	173,517	8.4	7.5
Proposed General Plan Update (2045)	559,273	1,546,876	2,106,149	1,826,513	202,737	10.4	9.0

Notes: Total may not add to 100% due to rounding.

IX = Internal-External

XI = External- Internal

II = Internal-Internal

Accounting of VMT is based on the recommendations of CARB's Regional Targets Advisory Committee (RTAC) created under Senate Bill 375 (SB 375). For accounting purposes, there are three types of trips:

» Vehicle trips that originated and terminated within the City (Internal-Internal, I-I). Using the accounting rules established by RTAC, 100 percent of the length of these trips, and their emissions, are attributed to the City.

» Vehicle trips that either originated or terminated (but not both) within the City (Internal-External or External-Internal, I-X and X-I). Using the accounting rules established by RTAC, 50 percent of the trip length for these trips is attributed to the City.

» Vehicle trips that neither originated nor terminated within the City. These trips are commonly called pass-through trips (External-External, X-X). Using the accounting rules established by RTAC, these trips are not counted towards the City's VMT or emissions.

REDDING — TRANSPORTATION SECTOR

Source: EMFAC2021 V 1.0.2, Web Database - Onroad Emissions Rates. Shasta County. Based on the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) Global Warming Potentials (GWPs)

Note: MTons = metric tons; CO_2e = carbon dioxide-equivalent.

Criteria Air Pollutant Emissions

	lbs/day					
	ROG	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Existing Conditions (2020)	150	1,710	3,927	14	116	55
Existing (2045)	22	436	1,298	9	90	34
Proposed General Plan (2045)	31	614	1,828	13	127	48
Change from Existing Land Uses (2045)	**9**	**178**	**530**	**4**	**37**	**14**
Change from Existing Conditions	-120	-1,095	-2,099	-1	10	-7

GHG EMISSIONS

	MTons/year			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Existing Conditions (2020)	231,469	4	17	236,188
Proposed General Plan (2045)	216,512	1	15	220,596
Change from Existing Conditions	**-14,957**	**-3**	**-2**	**-15,592**

Note: MTons = metric tons; CO_2e = carbon dioxide-equivalent.

Year 2020 Existing: Criteria Air Pollutants

Source: EMFAC2021 Version 1.0.2 web database. Onroad Emission Rates. Shasta County.

Daily VMT	1,297,028			lbs/day					
Vehicle Type	Fuel Type	Percent of VMT	Percent for Redding (Default)	ROG	NOx	CO	SOx	PM10	PM2.5
All Other Buses	Diesel	0.03%	0.03%	0.3247	3.6651	0.8407	0.0093	0.1708	0.1325
LDA	Gasoline	38.90%	38.90%	19.1511	88.0747	1,241.352	3.3570	18.0298	6.3492
LDA	Diesel	0.22%	0.22%	0.2262	2.4235	2.4980	0.0141	0.2342	0.1636
LDA	Electricity	0.66%	0.66%	0.0000	0.0000	0.0000	0.0000	0.2328	0.0664
LDA	Plug-in Hybrid	0.72%	0.72%	0.0298	0.0712	5.0064	0.0302	0.2576	0.0841
LDT1	Gasoline	5.17%	5.17%	8.7639	40.5860	402.9469	0.5269	2.8301	1.1133
LDT1	Diesel	0.00%	0.00%	0.0119	0.0604	0.0729	0.0001	0.0096	0.0088
LDT1	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0006	0.0002
LDT1	Plug-in Hybrid	0.00%	0.00%	0.0000	0.0000	0.0022	0.0000	0.0001	0.0000
LDT2	Gasoline	19.35%	19.35%	11.7142	78.6326	740.0069	2.1051	9.6872	3.4395
LDT2	Diesel	0.06%	0.06%	0.0364	0.2559	0.3100	0.0050	0.0447	0.0261
LDT2	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0012	0.0004
LDT2	Plug-in Hybrid	0.05%	0.05%	0.0019	0.0044	0.3133	0.0019	0.0164	0.0054
LHD1	Gasoline	2.48%	2.48%	7.3931	30.5429	155.3843	0.6779	6.2804	2.2483
LHD1	Diesel	3.75%	3.75%	29.9537	382.1080	93.4532	0.6432	16.4214	9.7278
LHD2	Gasoline	0.27%	0.27%	0.4181	2.0240	10.1822	0.0796	0.7736	0.2726
LHD2	Diesel	1.15%	1.15%	6.7213	66.8108	18.3775	0.2451	4.8590	2.5577
MCY	Gasoline	0.51%	0.51%	23.6152	11.5405	273.8837	0.0286	0.2631	0.1027
MDV	Gasoline	15.97%	15.97%	18.1262	101.4128	835.5951	2.1050	8.1750	2.9339
MDV	Diesel	0.41%	0.41%	0.1827	1.2592	2.6556	0.0472	0.2811	0.1471
MDV	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0017	0.0005
MDV	Plug-in Hybrid	0.06%	0.06%	0.0024	0.0058	0.4111	0.0025	0.0213	0.0071
MH	Gasoline	0.15%	0.15%	0.5545	2.9576	14.7819	0.0822	0.2527	0.0890
MH	Diesel	0.06%	0.06%	0.2994	11.0257	1.0434	0.0178	0.4133	0.3284
Motor Coach	Diesel	0.02%	0.02%	0.0461	1.6297	0.1808	0.0090	0.0834	0.0501
OBUS	Gasoline	0.07%	0.07%	0.2105	1.5168	4.7440	0.0346	0.1092	0.0369
PTO	Diesel	0.09%	0.09%	0.4435	12.4669	1.6403	0.0524	0.1165	0.1114
SBUS	Gasoline	0.02%	0.02%	0.0659	0.5424	1.6079	0.0054	0.0360	0.0126
SBUS	Diesel	0.08%	0.08%	0.2371	15.3090	0.6707	0.0258	0.2345	0.1421
SBUS	Natural Gas	0.00%	0.00%	0.0005	0.0059	0.1146	0.0000	0.0006	0.0002
T6 CAIRP Class 4	Diesel	0.00%	0.00%	0.0013	0.0374	0.0051	0.0003	0.0028	0.0017
T6 CAIRP Class 5	Diesel	0.00%	0.00%	0.0012	0.0416	0.0054	0.0004	0.0034	0.0019
T6 CAIRP Class 6	Diesel	0.00%	0.00%	0.0042	0.1254	0.0169	0.0011	0.0097	0.0057
T6 CAIRP Class 7	Diesel	0.02%	0.02%	0.0267	0.9407	0.1124	0.0066	0.0608	0.0357
T6 Instate Delivery Class 4	Diesel	0.01%	0.01%	0.0969	1.3867	0.2650	0.0046	0.0635	0.0457
T6 Instate Delivery Class 5	Diesel	0.01%	0.01%	0.0926	1.4235	0.2441	0.0050	0.0570	0.0386
T6 Instate Delivery Class 6	Diesel	0.04%	0.04%	0.3057	4.5846	0.8198	0.0139	0.1890	0.1360
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	0.0493	1.3388	0.1492	0.0066	0.0502	0.0268
T6 Instate Other Class 4	Diesel	0.10%	0.10%	0.6954	11.7022	2.0390	0.0308	0.5229	0.3988
T6 Instate Other Class 5	Diesel	0.27%	0.27%	0.5854	12.3942	1.9098	0.0829	0.7314	0.4289
T6 Instate Other Class 6	Diesel	0.14%	0.14%	0.6984	11.6110	2.1078	0.0426	0.6023	0.4350
T6 Instate Other Class 7	Diesel	0.17%	0.17%	0.3971	10.4958	1.3144	0.0510	0.4713	0.2796
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	0.0055	0.2210	0.0167	0.0012	0.0072	0.0031
T6 Instate Tractor Class 7	Diesel	0.05%	0.05%	0.1526	4.7595	0.4756	0.0138	0.1390	0.0842
T6 OOS Class 4	Diesel	0.00%	0.00%	0.0008	0.0242	0.0033	0.0002	0.0018	0.0011
T6 OOS Class 5	Diesel	0.00%	0.00%	0.0008	0.0265	0.0035	0.0003	0.0022	0.0012
T6 OOS Class 6	Diesel	0.00%	0.00%	0.0028	0.0816	0.0110	0.0007	0.0062	0.0037
T6 OOS Class 7	Diesel	0.02%	0.02%	0.0219	0.7104	0.0919	0.0048	0.0464	0.0280
T6 Public Class 4	Diesel	0.02%	0.02%	0.0516	3.6523	0.1191	0.0054	0.0447	0.0267
T6 Public Class 5	Diesel	0.02%	0.02%	0.0334	1.6716	0.0966	0.0079	0.0472	0.0206
T6 Public Class 6	Diesel	0.02%	0.02%	0.0385	2.7652	0.0895	0.0052	0.0425	0.0249
T6 Public Class 7	Diesel	0.07%	0.07%	0.2802	17.4976	0.5989	0.0261	0.2594	0.1708
T6 Utility Class 5	Diesel	0.02%	0.02%	0.0147	0.7718	0.0597	0.0074	0.0430	0.0165
T6 Utility Class 6	Diesel	0.00%	0.00%	0.0041	0.2265	0.0142	0.0014	0.0086	0.0036
T6 Utility Class 7	Diesel	0.01%	0.01%	0.0042	0.2860	0.0160	0.0020	0.0119	0.0049
T6TS	Gasoline	0.18%	0.18%	0.8358	4.4283	18.1506	0.0931	0.2938	0.1016
T7 CAIRP Class 8	Diesel	2.54%	2.54%	3.6714	201.5059	14.4226	1.0985	11.5946	5.9057
T7 NNOOS Class 8	Diesel	3.01%	3.01%	7.5503	248.8121	32.2585	1.3157	16.5499	9.6333
T7 NOOS Class 8	Diesel	1.10%	1.10%	1.7817	89.9668	6.9571	0.4747	5.1268	2.6629
T7 Other Port Class 8	Diesel	0.03%	0.03%	0.0751	3.0345	0.2506	0.0120	0.1155	0.0502
T7 POAK Class 8	Diesel	0.05%	0.05%	0.1693	6.3619	0.5588	0.0231	0.2320	0.1045
T7 Public Class 8	Diesel	0.16%	0.16%	0.6762	48.5780	2.1341	0.0831	0.9834	0.5025
T7 Single Concrete/Transit Mix	Diesel	0.02%	0.02%	0.1155	2.9716	0.4419	0.0112	0.1742	0.1113

T7 Single Concrete/Transit Mix	Natural Gas	0.00%	0.00%	0.0002	0.0076	0.1296	0.0000	0.0017	0.0006
T7 Single Dump Class 8	Diesel	0.11%	0.11%	0.2466	9.4470	0.9742	0.0495	0.5516	0.2894
T7 Single Dump Class 8	Natural Gas	0.00%	0.00%	0.0008	0.0327	0.5433	0.0000	0.0063	0.0021
T7 Single Other Class 8	Diesel	0.31%	0.31%	0.6757	26.3589	2.5307	0.1404	1.4851	0.7472
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	0.0031	0.1213	2.0311	0.0000	0.0244	0.0080
T7 SWCV Class 8	Diesel	0.08%	0.08%	0.0621	20.7772	0.1632	0.0838	0.5717	0.2133
T7 SWCV Class 8	Natural Gas	0.01%	0.01%	0.0299	0.7601	10.2643	0.0000	0.1009	0.0340
T7 Tractor Class 8	Diesel	1.06%	1.06%	2.2188	100.5884	8.3852	0.4592	4.9950	2.4804
T7 Tractor Class 8	Natural Gas	0.01%	0.01%	0.0041	0.1666	2.8763	0.0000	0.0334	0.0109
T7 Utility Class 8	Diesel	0.02%	0.02%	0.0213	1.3014	0.1044	0.0091	0.0784	0.0291
T7IS	Gasoline	0.00%	0.00%	0.1533	0.2727	4.7594	0.0011	0.0056	0.0020
UBUS	Gasoline	0.02%	0.02%	0.0046	0.0593	0.3073	0.0065	0.0601	0.0208
UBUS	Diesel	0.03%	0.03%	0.0494	0.4645	0.0503	0.0090	0.1222	0.0431
		100.00%	100.00%	150	1,710	3,927	14	116	55

Year 2020 Existing: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Onroad Emission Rates. Shasta County.

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan Measure Documentation Supplement.

				CO_2	CH_4	N_2O	
				AR5 GWP	AR5 GWP	AR5 GWP	
Annual VMT	**450,068,716**			1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Percent for Redding (Default)**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	0.03%	0.03%	155	0.002	0.024	161
LDA	Gasoline	38.90%	38.90%	53,450	0.705	1.202	53,788
LDA	Diesel	0.22%	0.22%	235	0.002	0.037	244
LDA	Electricity	0.66%	0.66%	0	0.000	0.000	0
LDA	Plug-in Hybrid	0.72%	0.72%	480	0.001	0.002	481
LDT1	Gasoline	5.17%	5.17%	8,389	0.290	0.398	8,503
LDT1	Diesel	0.00%	0.00%	2	0.000	0.000	3
LDT1	Electricity	0.00%	0.00%	0	0.000	0.000	0
LDT1	Plug-in Hybrid	0.00%	0.00%	0	0.000	0.000	0
LDT2	Gasoline	19.35%	19.35%	33,514	0.424	0.842	33,749
LDT2	Diesel	0.06%	0.06%	84	0.000	0.013	87
LDT2	Electricity	0.00%	0.00%	0	0.000	0.000	0
LDT2	Plug-in Hybrid	0.05%	0.05%	30	0.000	0.000	30
LHD1	Gasoline	2.48%	2.48%	10,794	0.224	0.248	10,866
LHD1	Diesel	3.75%	3.75%	10,683	0.219	1.683	11,135
LHD2	Gasoline	0.27%	0.27%	1,268	0.013	0.018	1,273
LHD2	Diesel	1.15%	1.15%	4,072	0.049	0.642	4,243
MCY	Gasoline	0.51%	0.51%	456	0.518	0.112	500
MDV	Gasoline	15.97%	15.97%	33,514	0.571	0.969	33,787
MDV	Diesel	0.41%	0.41%	784	0.001	0.124	817
MDV	Electricity	0.00%	0.00%	0	0.000	0.000	0
MDV	Plug-in Hybrid	0.06%	0.06%	39	0.000	0.000	39
MH	Gasoline	0.15%	0.15%	1,308	0.018	0.025	1,315
MH	Diesel	0.06%	0.06%	295	0.002	0.046	307
Motor Coach	Diesel	0.02%	0.02%	149	0.000	0.024	156
OBUS	Gasoline	0.07%	0.07%	551	0.007	0.011	554
PTO	Diesel	0.09%	0.09%	871	0.003	0.137	907
SBUS	Gasoline	0.02%	0.02%	86	0.002	0.004	87
SBUS	Diesel	0.08%	0.08%	429	0.002	0.068	447
SBUS	Natural Gas	0.00%	0.00%	2	0.005	0.000	2
T6 CAIRP Class 4	Diesel	0.00%	0.00%	5	0.000	0.001	5
T6 CAIRP Class 5	Diesel	0.00%	0.00%	7	0.000	0.001	7
T6 CAIRP Class 6	Diesel	0.00%	0.00%	19	0.000	0.003	19
T6 CAIRP Class 7	Diesel	0.02%	0.02%	110	0.000	0.017	115
T6 Instate Delivery Class 4	Diesel	0.01%	0.01%	76	0.001	0.012	79
T6 Instate Delivery Class 5	Diesel	0.01%	0.01%	82	0.001	0.013	86
T6 Instate Delivery Class 6	Diesel	0.04%	0.04%	231	0.002	0.036	241
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	109	0.000	0.017	114
T6 Instate Other Class 4	Diesel	0.10%	0.10%	512	0.005	0.081	534
T6 Instate Other Class 5	Diesel	0.27%	0.27%	1,378	0.004	0.217	1,435
T6 Instate Other Class 6	Diesel	0.14%	0.14%	709	0.005	0.112	739
T6 Instate Other Class 7	Diesel	0.17%	0.17%	848	0.003	0.134	883
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	20	0.000	0.003	20
T6 Instate Tractor Class 7	Diesel	0.05%	0.05%	229	0.001	0.036	238
T6 OOS Class 4	Diesel	0.00%	0.00%	3	0.000	0.001	3
T6 OOS Class 5	Diesel	0.00%	0.00%	4	0.000	0.001	5
T6 OOS Class 6	Diesel	0.00%	0.00%	12	0.000	0.002	12
T6 OOS Class 7	Diesel	0.02%	0.02%	80	0.000	0.013	83
T6 Public Class 4	Diesel	0.02%	0.02%	90	0.000	0.014	93
T6 Public Class 5	Diesel	0.02%	0.02%	132	0.000	0.021	138
T6 Public Class 6	Diesel	0.02%	0.02%	87	0.000	0.014	90
T6 Public Class 7	Diesel	0.07%	0.07%	434	0.002	0.068	452
T6 Utility Class 5	Diesel	0.02%	0.02%	123	0.000	0.019	128
T6 Utility Class 6	Diesel	0.00%	0.00%	24	0.000	0.004	25
T6 Utility Class 7	Diesel	0.01%	0.01%	33	0.000	0.005	34
T6TS	Gasoline	0.18%	0.18%	1,482	0.025	0.030	1,491
T7 CAIRP Class 8	Diesel	2.54%	2.54%	18,260	0.027	2.877	19,023

Year 2020 Existing: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Onroad Emission Rates. Shasta County.

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan Measure Documentation Supplement.

				CO_2	CH_4	N_2O	
				AR5 GWP	AR5 GWP	AR5 GWP	
Annual VMT	**450,068,716**			1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Percent for Redding (Default)**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T7 NNOOS Class 8	Diesel	3.01%	3.01%	21,869	0.055	3.446	22,784
T7 NOOS Class 8	Diesel	1.10%	1.10%	7,890	0.013	1.243	8,220
T7 Other Port Class 8	Diesel	0.03%	0.03%	200	0.001	0.031	208
T7 POAK Class 8	Diesel	0.05%	0.05%	384	0.001	0.060	400
T7 Public Class 8	Diesel	0.16%	0.16%	1,382	0.005	0.218	1,440
T7 Single Concrete/Transit Mix Class 8	Diesel	0.02%	0.02%	185	0.001	0.029	193
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.00%	0.00%	3	0.002	0.001	3
T7 Single Dump Class 8	Diesel	0.11%	0.11%	823	0.002	0.130	858
T7 Single Dump Class 8	Natural Gas	0.00%	0.00%	11	0.009	0.002	12
T7 Single Other Class 8	Diesel	0.31%	0.31%	2,334	0.005	0.368	2,432
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	43	0.034	0.009	46
T7 SWCV Class 8	Diesel	0.08%	0.08%	1,393	0.000	0.219	1,451
T7 SWCV Class 8	Natural Gas	0.01%	0.01%	103	0.329	0.021	118
T7 Tractor Class 8	Diesel	1.06%	1.06%	7,633	0.016	1.203	7,952
T7 Tractor Class 8	Natural Gas	0.01%	0.01%	59	0.045	0.012	63
T7 Utility Class 8	Diesel	0.02%	0.02%	151	0.000	0.024	157
T7IS	Gasoline	0.00%	0.00%	17	0.003	0.001	17
UBUS	Gasoline	0.02%	0.02%	104	0.000	0.001	104
UBUS	Diesel	0.03%	0.03%	149	0.000	0.023	155
		100.00%	**100.00%**	**231,469**	**4**	**17**	**236,188**

Source: EMFAC2021 (v1.0.2) Emission Rates

Region Type: County
Region: Shasta
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

			g/mile														
Vehicle Category	Fuel	VMT Total	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM10_PMTW	PM10_PMBW	PM10_TOTAL	PM2.5_RUNEX	PM2.5_PMTW	PM2.5_PMBW	PM 2.5 Total	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	Diesel	1,937	3.82E-01	4.32E+00	9.90E-01	1.10E-02	1.43E-01	1.20E-02	4.61E-02	2.01E-01	1.37E-01	3.00E-03	1.61E-02	1.56E-01	1.16E+03	1.78E-02	1.82E-01
LDA	Gasoline	2,537,860	1.72E-02	7.92E-02	1.12E+00	3.02E-03	1.47E-03	8.00E-03	6.74E-03	1.62E-02	1.35E-03	2.00E-03	2.36E-03	5.71E-03	3.05E+02	4.03E-03	6.86E-03
LDA	Diesel	14,092	3.66E-02	3.92E-01	4.04E-01	2.29E-03	2.31E-02	8.00E-03	6.80E-03	3.79E-02	2.21E-02	2.00E-03	2.38E-03	2.65E-02	2.41E+02	1.70E-03	3.80E-02
LDA	Electricity	42,972	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.36E-03	1.24E-02	0.00E+00	2.00E-03	1.53E-03	3.53E-03	0.00E+00	0.00E+00	0.00E+00
LDA	Plug-in Hybrid	46,667	1.46E-03	3.48E-03	2.45E-01	1.48E-03	8.81E-04	8.00E-03	3.71E-03	1.26E-02	8.10E-04	2.00E-03	1.30E-03	4.11E-03	1.49E+02	4.60E-04	6.31E-04
LDT1	Gasoline	337,008	5.93E-02	2.75E-01	2.73E+00	3.57E-03	2.86E-03	8.00E-03	8.30E-03	1.92E-02	2.63E-03	2.00E-03	2.90E-03	7.54E-03	3.61E+02	1.25E-02	1.71E-02
LDT1	Diesel	86	3.14E-01	1.59E+00	1.92E+00	3.83E-03	2.37E-01	8.00E-03	9.43E-03	2.54E-01	2.26E-01	2.00E-03	3.30E-03	2.32E-01	4.04E+02	1.46E-02	6.36E-02
LDT1	Electricity	110	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00
LDT1	Plug-in Hybrid	21	1.43E-03	3.40E-03	2.40E-01	1.44E-03	8.00E-04	8.00E-03	3.72E-03	1.25E-02	7.36E-04	2.00E-03	1.30E-03	4.04E-03	1.46E+02	4.53E-04	6.25E-04
LDT2	Gasoline	1,262,241	2.12E-02	1.42E-01	1.34E+00	3.81E-03	1.56E-03	8.00E-03	7.95E-03	1.75E-02	1.43E-03	2.00E-03	2.78E-03	6.22E-03	3.85E+02	4.87E-03	9.68E-03
LDT2	Diesel	3,698	2.25E-02	1.58E-01	1.91E-01	3.11E-03	1.20E-02	8.00E-03	7.65E-03	2.76E-02	1.14E-02	2.00E-03	2.68E-03	1.61E-02	3.28E+02	1.04E-03	5.17E-02
LDT2	Electricity	229	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.35E-03	1.24E-02	0.00E+00	2.00E-03	1.52E-03	3.52E-03	0.00E+00	0.00E+00	0.00E+00
LDT2	Plug-in Hybrid	2,964	1.43E-03	3.42E-03	2.41E-01	1.45E-03	9.17E-04	8.00E-03	3.72E-03	1.26E-02	8.43E-04	2.00E-03	1.30E-03	4.14E-03	1.47E+02	4.55E-04	6.27E-04
LHD1	Gasoline	161,644	1.04E-01	4.31E-01	2.19E+00	9.57E-03	2.65E-03	8.00E-03	7.80E-02	8.86E-02	2.43E-03	2.00E-03	2.73E-02	3.17E-02	9.68E+02	2.01E-02	2.22E-02
LHD1	Diesel	244,611	2.79E-01	3.56E+00	8.72E-01	6.00E-03	6.32E-02	1.20E-02	7.80E-02	1.53E-01	6.04E-02	3.00E-03	2.73E-02	9.07E-02	6.33E+02	1.30E-02	9.97E-02
LHD2	Gasoline	17,506	5.45E-02	2.64E-01	1.33E+00	1.04E-02	1.83E-03	8.00E-03	9.10E-02	1.01E-01	1.68E-03	2.00E-03	3.19E-02	3.55E-02	1.05E+03	1.10E-02	1.48E-02
LHD2	Diesel	74,905	2.05E-01	2.04E+00	5.60E-01	7.47E-03	4.50E-02	1.20E-02	9.10E-02	1.48E-01	4.31E-02	3.00E-03	3.19E-02	7.79E-02	7.88E+02	9.51E-03	1.24E-01
MCY	Gasoline	33,535	1.61E+00	7.85E-01	1.86E+01	1.95E-03	1.90E-03	4.00E-03	1.20E-02	1.79E-02	1.79E-03	1.00E-03	4.20E-03	6.99E-03	1.97E+02	2.24E-01	4.86E-02
MDV	Gasoline	1,042,000	3.97E-02	2.22E-01	1.83E+00	4.61E-03	1.68E-03	8.00E-03	8.22E-03	1.79E-02	1.55E-03	2.00E-03	2.88E-03	6.42E-03	4.66E+02	7.94E-03	1.35E-02
MDV	Diesel	26,875	1.55E-02	1.07E-01	2.25E-01	4.01E-03	8.13E-03	8.00E-03	7.73E-03	2.39E-02	7.78E-03	2.00E-03	2.71E-03	1.25E-02	4.23E+02	7.20E-04	6.66E-02
MDV	Electricity	307	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.35E-03	1.23E-02	0.00E+00	2.00E-03	1.52E-03	3.52E-03	0.00E+00	0.00E+00	0.00E+00
MDV	Plug-in Hybrid	3,817	1.46E-03	3.49E-03	2.46E-01	1.48E-03	1.02E-03	8.00E-03	3.71E-03	1.27E-02	9.36E-04	2.00E-03	1.30E-03	4.23E-03	1.50E+02	4.64E-04	6.38E-04
MH	Gasoline	9,709	1.30E-01	6.95E-01	3.47E+00	1.93E-02	2.32E-03	1.20E-02	4.50E-02	5.94E-02	2.14E-03	3.00E-03	1.58E-02	2.09E-02	1.95E+03	2.68E-02	3.73E-02
MH	Diesel	3,972	1.72E-01	6.33E+00	5.99E-01	1.02E-02	1.77E-01	1.60E-02	4.48E-02	2.37E-01	1.69E-01	4.00E-03	1.57E-02	1.89E-01	1.08E+03	7.99E-03	1.70E-01
Motor Coach	Diesel	1,228	8.56E-02	3.03E+00	3.36E-01	1.67E-02	6.60E-02	1.20E-02	7.70E-02	1.55E-01	6.31E-02	3.00E-03	2.69E-02	9.31E-02	1.76E+03	3.98E-03	2.78E-01
OBUS	Gasoline	4,316	1.11E-01	8.02E-01	2.51E+00	1.83E-02	8.61E-04	1.20E-02	4.49E-02	5.77E-02	7.91E-04	3.00E-03	1.57E-02	1.95E-02	1.85E+03	2.24E-02	3.57E-02
PTO	Diesel	5,826	1.74E-01	4.88E+00	6.42E-01	2.05E-02	4.56E-02	0.00E+00	0.00E+00	4.56E-02	4.36E-02	0.00E+00	0.00E+00	4.36E-02	2.17E+03	8.07E-03	3.41E-01
SBUS	Gasoline	1,508	9.96E-02	8.20E-01	2.43E+00	8.17E-03	1.52E-03	8.00E-03	4.49E-02	5.44E-02	1.40E-03	2.00E-03	1.57E-02	1.91E-02	8.26E+02	2.01E-02	3.90E-02
SBUS	Diesel	5,253	1.03E-01	6.65E+00	2.91E-01	1.12E-02	4.49E-02	1.20E-02	4.49E-02	1.02E-01	4.30E-02	3.00E-03	1.57E-02	6.17E-02	1.18E+03	4.78E-03	1.86E-01
SBUS	Natural Gas	21	5.21E-02	6.48E-01	1.26E+01	0.00E+00	3.67E-03	1.20E-02	4.49E-02	6.06E-02	3.38E-03	3.00E-03	1.57E-02	2.21E-02	1.34E+03	3.64E+00	2.73E-01
T6 CAIRP Class 4	Diesel	67	4.39E-02	1.28E+00	1.76E-01	1.08E-02	4.10E-02	1.20E-02	4.23E-02	9.54E-02	3.93E-02	3.00E-03	1.48E-02	5.71E-02	1.14E+03	2.04E-03	1.80E-01
T6 CAIRP Class 5	Diesel	92	3.06E-02	1.03E+00	1.33E-01	1.08E-02	3.10E-02	1.20E-02	4.23E-02	8.53E-02	2.96E-02	3.00E-03	1.48E-02	4.74E-02	1.14E+03	1.42E-03	1.79E-01
T6 CAIRP Class 6	Diesel	240	4.01E-02	1.19E+00	1.61E-01	1.07E-02	3.78E-02	1.20E-02	4.23E-02	9.21E-02	3.62E-02	3.00E-03	1.48E-02	5.40E-02	1.13E+03	1.86E-03	1.78E-01
T6 CAIRP Class 7	Diesel	1,503	4.05E-02	1.43E+00	1.71E-01	1.00E-02	3.80E-02	1.20E-02	4.23E-02	9.23E-02	3.63E-02	3.00E-03	1.48E-02	5.42E-02	1.06E+03	1.88E-03	1.67E-01
T6 Instate Delivery Class 4	Diesel	917	2.41E-01	3.45E+00	6.60E-01	1.14E-02	9.84E-02	1.20E-02	4.76E-02	1.58E-01	9.41E-02	3.00E-03	1.66E-02	1.14E-01	1.20E+03	1.12E-02	1.89E-01
T6 Instate Delivery Class 5	Diesel	973	2.17E-01	3.34E+00	5.73E-01	1.16E-02	7.41E-02	1.20E-02	4.76E-02	1.34E-01	7.09E-02	3.00E-03	1.66E-02	9.06E-02	1.23E+03	1.01E-02	1.94E-01
T6 Instate Delivery Class 6	Diesel	2,739	2.55E-01	3.82E+00	6.83E-01	1.16E-02	9.79E-02	1.20E-02	4.76E-02	1.57E-01	9.37E-02	3.00E-03	1.66E-02	1.13E-01	1.22E+03	1.18E-02	1.93E-01
T6 Instate Delivery Class 7	Diesel	1,294	8.69E-02	2.36E+00	2.63E-01	1.16E-02	2.89E-02	1.20E-02	4.76E-02	8.84E-02	2.76E-02	3.00E-03	1.66E-02	4.73E-02	1.22E+03	4.04E-03	1.93E-01
T6 Instate Other Class 4	Diesel	6,486	2.45E-01	4.12E+00	7.17E-01	1.08E-02	1.27E-01	1.20E-02	4.49E-02	1.84E-01	1.22E-01	3.00E-03	1.57E-02	1.40E-01	1.14E+03	1.14E-02	1.80E-01
T6 Instate Other Class 5	Diesel	17,308	7.72E-02	1.63E+00	2.52E-01	1.09E-02	3.96E-02	1.20E-02	4.49E-02	9.64E-02	3.78E-02	3.00E-03	1.57E-02	5.65E-02	1.15E+03	3.58E-03	1.82E-01
T6 Instate Other Class 6	Diesel	9,026	1.77E-01	2.93E+00	5.33E-01	1.08E-02	9.54E-02	1.20E-02	4.49E-02	1.52E-01	9.13E-02	3.00E-03	1.57E-02	1.10E-01	1.14E+03	8.20E-03	1.79E-01
T6 Instate Other Class 7	Diesel	10,950	8.27E-02	2.19E+00	2.74E-01	1.06E-02	4.13E-02	1.20E-02	4.49E-02	9.82E-02	3.96E-02	3.00E-03	1.57E-02	5.83E-02	1.12E+03	3.84E-03	1.77E-01
T6 Instate Tractor Class 6	Diesel	245	5.11E-02	2.06E+00	1.55E-01	1.10E-02	1.03E-02	1.20E-02	4.49E-02	6.72E-02	9.88E-03	3.00E-03	1.57E-02	2.86E-02	1.16E+03	2.38E-03	1.82E-01
T6 Instate Tractor Class 7	Diesel	3,116	1.12E-01	3.48E+00	3.48E-01	1.01E-02	4.49E-02	1.20E-02	4.49E-02	1.02E-01	4.29E-02	3.00E-03	1.57E-02	6.16E-02	1.06E+03	5.19E-03	1.68E-01
T6 OOS Class 4	Diesel	42	4.59E-02	1.32E+00	1.82E-01	1.08E-02	4.26E-02	1.20E-02	4.23E-02	9.69E-02	4.08E-02	3.00E-03	1.48E-02	5.86E-02	1.14E+03	2.13E-03	1.79E-01
T6 OOS Class 5	Diesel	57	3.15E-02	1.05E+00	1.37E-01	1.08E-02	3.19E-02	1.20E-02	4.23E-02	8.62E-02	3.05E-02	3.00E-03	1.48E-02	4.83E-02	1.14E+03	1.46E-03	1.79E-01
T6 OOS Class 6	Diesel	150	4.22E-02	1.24E+00	1.68E-01	1.07E-02	3.94E-02	1.20E-02	4.23E-02	9.38E-02	3.77E-02	3.00E-03	1.48E-02	5.55E-02	1.13E+03	1.96E-03	1.78E-01
T6 OOS Class 7	Diesel	1,091	4.57E-02	1.48E+00	1.92E-01	1.00E-02	4.27E-02	1.20E-02	4.23E-02	9.70E-02	4.08E-02	3.00E-03	1.48E-02	5.86E-02	1.06E+03	2.12E-03	1.67E-01
T6 Public Class 4	Diesel	1,004	1.17E-01	8.30E+00	2.71E-01	1.23E-02	4.33E-02	1.20E-02	4.62E-02	1.02E-01	4.15E-02	3.00E-03	1.62E-02	6.06E-02	1.30E+03	5.45E-03	2.04E-01
T6 Public Class 5	Diesel	1,541	4.94E-02	2.47E+00	1.43E-01	1.18E-02	1.18E-02	1.20E-02	4.62E-02	7.00E-02	1.13E-02	3.00E-03	1.62E-02	3.04E-02	1.24E+03	2.30E-03	1.96E-01
T6 Public Class 6	Diesel	988	8.88E-02	6.38E+00	2.07E-01	1.20E-02	4.00E-02	1.20E-02	4.62E-02	9.82E-02	3.83E-02	3.00E-03	1.62E-02	5.75E-02	1.27E+03	4.12E-03	2.00E-01
T6 Public Class 7	Diesel	4,833	1.32E-01	8.26E+00	2.83E-01	1.23E-02	6.43E-02	1.20E-02	4.62E-02	1.22E-01	6.15E-02	3.00E-03	1.62E-02	8.07E-02	1.30E+03	6.14E-03	2.05E-01
T6 Utility Class 5	Diesel	1,560	2.15E-02	1.13E+00	8.72E-02	1.08E-02	5.46E-03	1.20E-02	4.55E-02	6.30E-02	5.22E-03	3.00E-03	1.59E-02	2.41E-02	1.14E+03	9.97E-04	1.80E-01
T6 Utility Class 6	Diesel	295	3.15E-02	1.75E+00	1.10E-01	1.10E-02	8.96E-03	1.20E-02	4.55E-02	6.65E-02	8.57E-03	3.00E-03	1.59E-02	2.75E-02	1.16E+03	1.47E-03	1.83E-01
T6 Utility Class 7	Diesel	410	2.36E-02	1.59E+00	8.88E-02	1.10E-02	8.51E-03	1.20E-02	4.55E-02	6.60E-02	8.14E-03	3.00E-03	1.59E-02	2.71E-02	1.16E+03	1.10E-03	1.83E-01
T6TS	Gasoline	11,418	1.67E-01	8.85E-01	3.63E+00	1.86E-02	1.66E-03	1.20E-02	4.50E-02	5.87E-02	1.53E-03	3.00E-03	1.58E-02	2.03E-02	1.88E+03	3.15E-02	3.81E-02
T7 CAIRP Class 8	Diesel	165,447	5.06E-02	2.78E+00	1.99E-01	1.51E-02	4.79E-02	3.60E-02	7.60E-02	1.60E-01	4.59E-02	9.00E-03	2.66E-02	8.14E-02	1.60E+03	2.35E-03	2.52E-01
T7 NNOOS Class 8	Diesel	196,498	8.77E-02	2.89E+00	3.75E-01	1.53E-02	7.94E-02	3.60E-02	7.67E-02	1.92E-01	7.60E-02	9.00E-03	2.69E-02	1.12E-01	1.61E+03	4.07E-03	2.54E-01
T7 NOOS Class 8	Diesel	71,448	5.69E-02	2.87E+00	2.22E-01	1.52E-02	5.16E-02	3.60E-02	7.61E-02	1.64E-01	4.94E-02	9.00E-03	2.66E-02	8.50E-02	1.60E+03	2.64E-03	2.52E-01
T7 Other Port Class 8	Diesel	1,691	1.01E-01	4.09E+00	3.38E-01	1.62E-02	2.77E-02	3.60E-02	9.22E-02	1.56E-01	2.65E-02	9.00E-03	3.23E-02	6.77E-02	1.71E+03	4.71E-03	2.69E-01
T7 POAK Class 8	Diesel	3,254	1.19E-01	4.46E+00	3.92E-01	1.62E-02	3.29E-02	3.60E-02	9.38E-02	1.63E-01	3.15E-02	9.00E-03	3.28E-02	7.33E-02	1.71E+03	5.51E-03	2.69E-01

T7 Public Class 8	Diesel	10,248	1.51E-01	1.08E+01	4.75E-01	1.85E-02	6.40E-02	3.60E-02	1.19E-01	2.19E-01	6.13E-02	9.00E-03	4.16E-02	1.12E-01	1.95E+03	6.99E-03	3.08E-01
T7 Single Concrete/Transit Mix Class 8	Diesel	1,593	1.65E-01	4.26E+00	6.33E-01	1.60E-02	1.25E-01	3.60E-02	8.89E-02	2.50E-01	1.19E-01	9.00E-03	3.11E-02	1.59E-01	1.69E+03	7.68E-03	2.66E-01
T7 Single Concrete/Transit Mix Class 8	Natural Gas	33	1.51E-02	5.22E-01	8.95E+00	0.00E+00	1.46E-03	3.60E-02	8.20E-02	1.20E-01	1.34E-03	9.00E-03	2.87E-02	3.91E-02	1.33E+03	1.06E+00	2.71E-01
T7 Single Dump Class 8	Diesel	7,056	7.97E-02	3.05E+00	3.15E-01	1.60E-02	5.73E-02	3.60E-02	8.51E-02	1.78E-01	5.48E-02	9.00E-03	2.98E-02	9.36E-02	1.69E+03	3.70E-03	2.67E-01
T7 Single Dump Class 8	Natural Gas	119	1.50E-02	6.28E-01	1.04E+01	0.00E+00	1.22E-03	3.60E-02	8.34E-02	1.21E-01	1.12E-03	9.00E-03	2.92E-02	3.93E-02	1.36E+03	1.05E+00	2.77E-01
T7 Single Other Class 8	Diesel	20,075	7.68E-02	3.00E+00	2.88E-01	1.60E-02	4.85E-02	3.60E-02	8.43E-02	1.69E-01	4.64E-02	9.00E-03	2.95E-02	8.49E-02	1.69E+03	3.57E-03	2.66E-01
T7 Single Other Class 8	Natural Gas	465	1.51E-02	5.96E-01	9.98E+00	0.00E+00	1.29E-03	3.60E-02	8.28E-02	1.20E-01	1.19E-03	9.00E-03	2.90E-02	3.92E-02	1.34E+03	1.05E+00	2.72E-01
T7 SWCV Class 8	Diesel	4,980	2.85E-02	9.52E+00	7.48E-02	3.84E-02	1.59E-02	3.60E-02	2.10E-01	2.62E-01	1.52E-02	9.00E-03	7.35E-02	9.77E-02	4.05E+03	1.32E-03	6.39E-01
T7 SWCV Class 8	Natural Gas	934	7.31E-02	1.86E+00	2.51E+01	0.00E+00	6.76E-04	3.60E-02	2.10E-01	2.47E-01	6.22E-04	9.00E-03	7.35E-02	8.31E-02	1.60E+03	5.12E+00	3.26E-01
T7 Tractor Class 8	Diesel	69,448	7.29E-02	3.30E+00	2.75E-01	1.51E-02	4.56E-02	3.60E-02	8.25E-02	1.64E-01	4.36E-02	9.00E-03	2.89E-02	8.15E-02	1.59E+03	3.39E-03	2.51E-01
T7 Tractor Class 8	Natural Gas	660	1.42E-02	5.77E-01	9.95E+00	0.00E+00	1.21E-03	3.60E-02	7.84E-02	1.16E-01	1.12E-03	9.00E-03	2.74E-02	3.75E-02	1.29E+03	9.95E-01	2.64E-01
T7 Utility Class 8	Diesel	1,232	3.94E-02	2.41E+00	1.93E-01	1.68E-02	1.10E-02	3.60E-02	9.81E-02	1.45E-01	1.05E-02	9.00E-03	3.43E-02	5.39E-02	1.78E+03	1.83E-03	2.80E-01
T7IS	Gasoline	91	3.85E+00	6.85E+00	1.20E+02	2.66E-02	6.11E-03	2.00E-02	1.15E-01	1.41E-01	5.78E-03	5.00E-03	4.02E-02	5.10E-02	2.69E+03	4.60E-01	2.13E-01
UBUS	Gasoline	1,306	8.11E-03	1.04E-01	5.37E-01	1.14E-02	7.30E-04	8.92E-03	9.54E-02	1.05E-01	6.71E-04	2.23E-03	3.34E-02	3.63E-02	1.16E+03	2.66E-03	1.03E-02
UBUS	Diesel	2,117	5.32E-02	5.01E-01	5.42E-02	9.66E-03	3.60E-03	1.81E-02	1.10E-01	1.32E-01	3.45E-03	4.53E-03	3.85E-02	4.65E-02	1.02E+03	2.47E-03	1.61E-01
		6,523,955															

Source: EMFAC2021 (v1.0.2) Emiss

Region Type: County
Region: Shasta
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh

2.205E-03

Vehicle Category	Fuel	% of VMT
All Other Buses	Diesel	0.0297%
LDA	Gasoline	38.9006%
LDA	Diesel	0.2160%
LDA	Electricity	0.6587%
LDA	Plug-in Hybrid	0.7153%
LDT1	Gasoline	5.1657%
LDT1	Diesel	0.0013%
LDT1	Electricity	0.0017%
LDT1	Plug-in Hybrid	0.0003%
LDT2	Gasoline	19.3478%
LDT2	Diesel	0.0567%
LDT2	Electricity	0.0035%
LDT2	Plug-in Hybrid	0.0454%
LHD1	Gasoline	2.4777%
LHD1	Diesel	3.7494%
LHD2	Gasoline	0.2683%
LHD2	Diesel	1.1482%
MCY	Gasoline	0.5140%
MDV	Gasoline	15.9719%
MDV	Diesel	0.4119%
MDV	Electricity	0.0047%
MDV	Plug-in Hybrid	0.0585%
MH	Gasoline	0.1488%
MH	Diesel	0.0609%
Motor Coach	Diesel	0.0188%
OBUS	Gasoline	0.0662%
PTO	Diesel	0.0893%
SBUS	Gasoline	0.0231%
SBUS	Diesel	0.0805%
SBUS	Natural Gas	0.0003%
T6 CAIRP Class 4	Diesel	0.0010%
T6 CAIRP Class 5	Diesel	0.0014%
T6 CAIRP Class 6	Diesel	0.0037%
T6 CAIRP Class 7	Diesel	0.0230%
T6 Instate Delivery Class 4	Diesel	0.0140%
T6 Instate Delivery Class 5	Diesel	0.0149%
T6 Instate Delivery Class 6	Diesel	0.0420%
T6 Instate Delivery Class 7	Diesel	0.0198%
T6 Instate Other Class 4	Diesel	0.0994%
T6 Instate Other Class 5	Diesel	0.2653%
T6 Instate Other Class 6	Diesel	0.1384%
T6 Instate Other Class 7	Diesel	0.1678%
T6 Instate Tractor Class 6	Diesel	0.0038%
T6 Instate Tractor Class 7	Diesel	0.0478%
T6 OOS Class 4	Diesel	0.0006%
T6 OOS Class 5	Diesel	0.0009%
T6 OOS Class 6	Diesel	0.0023%
T6 OOS Class 7	Diesel	0.0167%
T6 Public Class 4	Diesel	0.0154%
T6 Public Class 5	Diesel	0.0236%
T6 Public Class 6	Diesel	0.0151%
T6 Public Class 7	Diesel	0.0741%
T6 Utility Class 5	Diesel	0.0239%
T6 Utility Class 6	Diesel	0.0045%
T6 Utility Class 7	Diesel	0.0063%
T6TS	Gasoline	0.1750%
T7 CAIRP Class 8	Diesel	2.5360%
T7 NNOOS Class 8	Diesel	3.0119%
T7 NOOS Class 8	Diesel	1.0952%
T7 Other Port Class 8	Diesel	0.0259%
T7 POAK Class 8	Diesel	0.0499%

T7 Public Class 8	Diesel	0.1571%
T7 Single Concrete/Transit Mix Class 8	Diesel	0.0244%
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.0005%
T7 Single Dump Class 8	Diesel	0.1082%
T7 Single Dump Class 8	Natural Gas	0.0018%
T7 Single Other Class 8	Diesel	0.3077%
T7 Single Other Class 8	Natural Gas	0.0071%
T7 SWCV Class 8	Diesel	0.0763%
T7 SWCV Class 8	Natural Gas	0.0143%
T7 Tractor Class 8	Diesel	1.0645%
T7 Tractor Class 8	Natural Gas	0.0101%
T7 Utility Class 8	Diesel	0.0189%
T7IS	Gasoline	0.0014%
UBUS	Gasoline	0.0200%
UBUS	Diesel	0.0325%
		100.0000%

Source: EMFAC2021 (v1.0.2) Emiss

Region Type: County
Region: Shasta
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh

lbs/Mile 1.000E-06

Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	Diesel	8.432E-04	9.519E-03	2.184E-03	2.415E-05	3.155E-04	2.646E-05	1.017E-04	4.437E-04	3.019E-04	6.614E-06	3.560E-05	3.441E-04	2.550E+00	3.916E-05	4.017E-04
LDA	Gasoline	3.796E-05	1.746E-04	2.460E-03	6.653E-06	3.230E-06	1.764E-05	1.487E-05	3.573E-05	2.970E-06	4.409E-06	5.205E-06	1.258E-05	6.730E-01	8.874E-06	1.513E-05
LDA	Diesel	8.072E-05	8.650E-04	8.916E-04	5.040E-06	5.096E-05	1.764E-05	1.498E-05	8.358E-05	4.875E-05	4.409E-06	5.245E-06	5.841E-05	5.319E-01	3.750E-06	8.380E-05
LDA	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.616E-06	2.725E-05	0.000E+00	4.409E-06	3.366E-06	7.776E-06	0.000E+00	0.000E+00	0.000E+00
LDA	Plug-in Hybrid	3.217E-06	7.676E-06	5.396E-04	3.252E-06	1.942E-06	1.764E-05	8.188E-06	2.777E-05	1.786E-06	4.409E-06	2.866E-06	9.061E-06	3.290E-01	1.014E-06	1.391E-06
LDT1	Gasoline	1.308E-04	6.058E-04	6.014E-03	7.864E-06	6.312E-06	1.764E-05	1.829E-05	4.224E-05	5.805E-06	4.409E-06	6.402E-06	1.662E-05	7.955E-01	2.748E-05	3.772E-05
LDT1	Diesel	6.921E-04	3.514E-03	4.238E-03	8.435E-06	5.215E-04	1.764E-05	2.078E-05	5.599E-04	4.989E-04	4.409E-06	7.273E-06	5.106E-04	8.902E-01	3.215E-05	1.403E-04
LDT1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.709E-06	2.735E-05	0.000E+00	4.409E-06	3.397E-06	7.806E-06	0.000E+00	0.000E+00	0.000E+00
LDT1	Plug-in Hybrid	3.144E-06	7.500E-06	5.296E-04	3.183E-06	1.764E-06	1.764E-05	8.194E-06	2.759E-05	1.623E-06	4.409E-06	2.868E-06	8.900E-06	3.219E-01	9.987E-07	1.378E-06
LDT2	Gasoline	4.668E-05	3.133E-04	2.949E-03	8.389E-06	3.437E-06	1.764E-05	1.753E-05	3.860E-05	3.161E-06	4.409E-06	6.135E-06	1.371E-05	8.485E-01	1.074E-05	2.133E-05
LDT2	Diesel	4.957E-05	3.481E-04	4.217E-04	6.859E-06	2.635E-05	1.764E-05	1.686E-05	6.085E-05	2.521E-05	4.409E-06	5.902E-06	3.552E-05	7.239E-01	2.302E-06	1.141E-04
LDT2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.599E-06	2.724E-05	0.000E+00	4.409E-06	3.360E-06	7.769E-06	0.000E+00	0.000E+00	0.000E+00
LDT2	Plug-in Hybrid	3.157E-06	7.533E-06	5.316E-04	3.197E-06	2.022E-06	1.764E-05	8.192E-06	2.785E-05	1.858E-06	4.409E-06	2.868E-06	9.136E-06	3.232E-01	1.003E-06	1.382E-06
LHD1	Gasoline	2.301E-04	9.504E-04	4.835E-03	2.110E-05	5.833E-06	1.764E-05	1.720E-04	1.954E-04	5.366E-06	4.409E-06	6.019E-05	6.996E-05	2.134E+00	4.427E-05	4.895E-05
LHD1	Diesel	6.159E-04	7.857E-03	1.922E-03	1.323E-05	1.393E-04	2.646E-05	1.720E-04	3.377E-04	1.332E-04	6.614E-06	6.019E-05	2.000E-04	1.396E+00	2.861E-05	2.199E-04
LHD2	Gasoline	1.201E-04	5.816E-04	2.926E-03	2.288E-05	4.030E-06	1.764E-05	2.006E-04	2.223E-04	3.706E-06	4.409E-06	7.022E-05	7.833E-05	2.314E+00	2.423E-05	3.266E-05
LHD2	Diesel	4.513E-04	4.486E-03	1.234E-03	1.646E-05	9.921E-05	2.646E-05	2.006E-04	3.263E-04	9.492E-05	6.614E-06	7.022E-05	1.717E-04	1.737E+00	2.096E-05	2.737E-04
MCY	Gasoline	3.542E-03	1.731E-03	4.108E-02	4.292E-06	4.189E-06	8.818E-06	2.646E-05	3.946E-05	3.944E-06	2.205E-06	9.259E-06	1.541E-05	4.341E-01	4.935E-04	1.072E-04
MDV	Gasoline	8.750E-05	4.895E-04	4.034E-03	1.016E-05	3.706E-06	1.764E-05	1.812E-05	3.946E-05	3.411E-06	4.409E-06	6.343E-06	1.416E-05	1.028E+00	1.750E-05	2.972E-05
MDV	Diesel	3.419E-05	2.357E-04	4.970E-04	8.834E-06	1.793E-05	1.764E-05	1.704E-05	5.261E-05	1.716E-05	4.409E-06	5.963E-06	2.753E-05	9.322E-01	1.587E-06	1.469E-04
MDV	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.583E-06	2.722E-05	0.000E+00	4.409E-06	3.355E-06	7.765E-06	0.000E+00	0.000E+00	0.000E+00
MDV	Plug-in Hybrid	3.223E-06	7.692E-06	5.417E-04	3.261E-06	2.244E-06	1.764E-05	8.179E-06	2.806E-05	2.064E-06	4.409E-06	2.862E-06	9.334E-06	3.299E-01	1.023E-06	1.407E-06
MH	Gasoline	2.873E-04	1.532E-03	7.658E-03	4.257E-05	5.119E-06	2.646E-05	9.931E-05	1.309E-04	4.713E-06	6.614E-06	3.476E-05	4.609E-05	4.306E+00	5.915E-05	8.226E-05
MH	Diesel	3.792E-04	1.396E-02	1.321E-03	2.250E-05	3.893E-04	3.527E-05	9.886E-05	5.235E-04	3.725E-04	8.818E-06	3.460E-05	4.159E-04	2.374E+00	1.761E-05	3.740E-04
Motor Coach	Diesel	1.887E-04	6.676E-03	7.407E-04	3.679E-05	1.455E-04	2.646E-05	1.696E-04	3.416E-04	1.392E-04	6.614E-06	5.937E-05	2.052E-04	3.885E+00	8.768E-06	6.122E-04
OBUS	Gasoline	2.453E-04	1.768E-03	5.529E-03	4.032E-05	1.898E-06	2.646E-05	9.896E-05	1.273E-04	1.744E-06	6.614E-06	3.463E-05	4.299E-05	4.079E+00	4.930E-05	7.867E-05
PTO	Diesel	3.829E-04	1.076E-02	1.416E-03	4.522E-05	1.005E-04	0.000E+00	0.000E+00	1.005E-04	9.619E-05	0.000E+00	0.000E+00	9.619E-05	4.775E+00	1.778E-05	7.524E-04
SBUS	Gasoline	2.196E-04	1.809E-03	5.362E-03	1.800E-05	3.353E-06	1.764E-05	9.902E-05	1.200E-04	3.082E-06	4.409E-06	3.466E-05	4.215E-05	1.821E+00	4.437E-05	8.591E-05
SBUS	Diesel	2.270E-04	1.466E-02	6.422E-04	2.470E-05	9.903E-05	2.646E-05	9.902E-05	2.245E-04	9.475E-05	6.614E-06	3.466E-05	1.360E-04	2.609E+00	1.054E-05	4.110E-04
SBUS	Natural Gas	1.147E-04	1.428E-03	2.782E-02	0.000E+00	8.100E-06	2.646E-05	9.902E-05	1.336E-04	7.447E-06	6.614E-06	3.466E-05	4.872E-05	2.954E+00	8.031E-03	6.023E-04
T6 CAIRP Class 4	Diesel	9.684E-05	2.818E-03	3.871E-04	2.380E-05	9.049E-05	2.646E-05	9.329E-05	2.102E-04	8.658E-05	6.614E-06	3.265E-05	1.258E-04	2.513E+00	4.497E-06	3.960E-04
T6 CAIRP Class 5	Diesel	6.739E-05	2.281E-03	2.940E-04	2.372E-05	6.828E-05	2.646E-05	9.329E-05	1.880E-04	6.532E-05	6.614E-06	3.265E-05	1.046E-04	2.505E+00	3.131E-06	3.946E-04
T6 CAIRP Class 6	Diesel	8.841E-05	2.634E-03	3.547E-04	2.360E-05	8.334E-05	2.646E-05	9.329E-05	2.031E-04	7.974E-05	6.614E-06	3.265E-05	1.190E-04	2.492E+00	4.107E-06	3.926E-04
T6 CAIRP Class 7	Diesel	8.929E-05	3.149E-03	3.764E-04	2.214E-05	8.376E-05	2.646E-05	9.329E-05	2.035E-04	8.014E-05	6.614E-06	3.265E-05	1.194E-04	2.338E+00	4.147E-06	3.683E-04
T6 Instate Delivery Class 4	Diesel	5.317E-04	7.610E-03	1.454E-03	2.509E-05	2.169E-04	2.646E-05	1.049E-04	3.482E-04	2.075E-04	6.614E-06	3.670E-05	2.509E-04	2.650E+00	2.470E-05	4.174E-04
T6 Instate Delivery Class 5	Diesel	4.788E-04	7.362E-03	1.262E-03	2.565E-05	1.634E-04	2.646E-05	1.049E-04	2.947E-04	1.563E-04	6.614E-06	3.670E-05	1.997E-04	2.709E+00	2.224E-05	4.267E-04
T6 Instate Delivery Class 6	Diesel	5.615E-04	8.421E-03	1.506E-03	2.554E-05	2.158E-04	2.646E-05	1.049E-04	3.471E-04	2.065E-04	6.614E-06	3.670E-05	2.498E-04	2.698E+00	2.608E-05	4.250E-04
T6 Instate Delivery Class 7	Diesel	1.915E-04	5.202E-03	5.796E-04	2.556E-05	6.360E-05	2.646E-05	1.049E-04	1.949E-04	6.085E-05	6.614E-06	3.670E-05	1.042E-04	2.699E+00	8.896E-06	4.252E-04
T6 Instate Other Class 4	Diesel	5.393E-04	9.075E-03	1.581E-03	2.389E-05	2.802E-04	2.646E-05	9.891E-05	4.055E-04	2.680E-04	6.614E-06	3.462E-05	3.093E-04	2.523E+00	2.505E-05	3.975E-04
T6 Instate Other Class 5	Diesel	1.701E-04	3.602E-03	5.550E-04	2.409E-05	8.720E-05	2.646E-05	9.891E-05	2.126E-04	8.343E-05	6.614E-06	3.462E-05	1.247E-04	2.544E+00	7.901E-06	4.008E-04
T6 Instate Other Class 6	Diesel	3.892E-04	6.470E-03	1.175E-03	2.376E-05	2.103E-04	2.646E-05	9.891E-05	3.356E-04	2.012E-04	6.614E-06	3.462E-05	2.424E-04	2.509E+00	1.808E-05	3.954E-04
T6 Instate Other Class 7	Diesel	1.824E-04	4.821E-03	6.038E-04	2.343E-05	9.115E-05	2.646E-05	9.891E-05	2.165E-04	8.721E-05	6.614E-06	3.462E-05	1.284E-04	2.474E+00	8.472E-06	3.898E-04
T6 Instate Tractor Class 6	Diesel	1.127E-04	4.539E-03	3.422E-04	2.417E-05	2.278E-05	2.646E-05	9.891E-05	1.481E-04	2.179E-05	6.614E-06	3.462E-05	6.302E-05	2.552E+00	5.236E-06	4.021E-04
T6 Instate Tractor Class 7	Diesel	2.463E-04	7.682E-03	7.676E-04	2.220E-05	9.892E-05	2.646E-05	9.891E-05	2.243E-04	9.464E-05	6.614E-06	3.462E-05	1.359E-04	2.344E+00	1.144E-05	3.693E-04
T6 OOS Class 4	Diesel	1.013E-04	2.911E-03	4.016E-04	2.378E-05	9.392E-05	2.646E-05	9.329E-05	2.137E-04	8.986E-05	6.614E-06	3.265E-05	1.291E-04	2.511E+00	4.705E-06	3.956E-04
T6 OOS Class 5	Diesel	6.941E-05	2.322E-03	3.022E-04	2.370E-05	7.026E-05	2.646E-05	9.329E-05	1.900E-04	6.722E-05	6.614E-06	3.265E-05	1.065E-04	2.503E+00	3.223E-06	3.944E-04
T6 OOS Class 6	Diesel	9.308E-05	2.734E-03	3.699E-04	2.357E-05	8.696E-05	2.646E-05	9.329E-05	2.067E-04	8.319E-05	6.614E-06	3.265E-05	1.225E-04	2.489E+00	4.323E-06	3.922E-04
T6 OOS Class 7	Diesel	1.008E-04	3.274E-03	4.234E-04	2.215E-05	9.407E-05	2.646E-05	9.329E-05	2.138E-04	9.000E-05	6.614E-06	3.265E-05	1.293E-04	2.339E+00	4.680E-06	3.685E-04
T6 Public Class 4	Diesel	2.585E-04	1.829E-02	5.965E-04	2.704E-05	9.554E-05	2.646E-05	1.018E-04	2.238E-04	9.141E-05	6.614E-06	3.562E-05	1.336E-04	2.856E+00	1.201E-05	4.499E-04
T6 Public Class 5	Diesel	1.090E-04	5.456E-03	3.153E-04	2.594E-05	2.598E-05	2.646E-05	1.018E-04	1.542E-04	2.486E-05	6.614E-06	3.562E-05	6.709E-05	2.739E+00	5.064E-06	4.316E-04
T6 Public Class 6	Diesel	1.957E-04	1.407E-02	4.555E-04	2.653E-05	8.823E-05	2.646E-05	1.018E-04	2.165E-04	8.442E-05	6.614E-06	3.562E-05	1.267E-04	2.802E+00	9.090E-06	4.414E-04
T6 Public Class 7	Diesel	2.916E-04	1.821E-02	6.233E-04	2.716E-05	1.417E-04	2.646E-05	1.018E-04	2.699E-04	1.356E-04	6.614E-06	3.562E-05	1.778E-04	2.868E+00	1.355E-05	4.519E-04
T6 Utility Class 5	Diesel	4.731E-05	2.488E-03	1.923E-04	2.383E-05	1.203E-05	2.646E-05	1.003E-04	1.388E-04	1.151E-05	6.614E-06	3.511E-05	5.323E-05	2.517E+00	2.198E-06	3.965E-04
T6 Utility Class 6	Diesel	6.953E-05	3.864E-03	2.417E-04	2.431E-05	1.975E-05	2.646E-05	1.003E-04	1.465E-04	1.890E-05	6.614E-06	3.511E-05	6.062E-05	2.567E+00	3.230E-06	4.045E-04
T6 Utility Class 7	Diesel	5.199E-05	3.507E-03	1.958E-04	2.426E-05	1.876E-05	2.646E-05	1.003E-04	1.455E-04	1.795E-05	6.614E-06	3.511E-05	5.967E-05	2.562E+00	2.414E-06	4.036E-04
T6TS	Gasoline	3.682E-04	1.951E-03	7.996E-03	4.101E-05	3.662E-06	2.646E-05	9.931E-05	1.294E-04	3.366E-06	6.614E-06	3.476E-05	4.474E-05	4.148E+00	6.946E-05	8.398E-05
T7 CAIRP Class 8	Diesel	1.116E-04	6.126E-03	4.385E-04	3.340E-05	1.057E-04	7.937E-05	1.675E-04	3.525E-04	1.011E-04	1.984E-05	5.862E-05	1.795E-04	3.527E+00	5.185E-06	5.557E-04
T7 NNOOS Class 8	Diesel	1.933E-04	6.369E-03	8.258E-04	3.368E-05	1.751E-04	7.937E-05	1.692E-04	4.236E-04	1.675E-04	1.984E-05	5.921E-05	2.466E-04	3.557E+00	8.977E-06	5.603E-04
T7 NOOS Class 8	Diesel	1.254E-04	6.334E-03	4.898E-04	3.342E-05	1.139E-04	7.937E-05	1.677E-04	3.609E-04	1.089E-04	1.984E-05	5.870E-05	1.875E-04	3.529E+00	5.827E-06	5.560E-04
T7 Other Port Class 8	Diesel	2.233E-04	9.026E-03	7.453E-04	3.570E-05	6.102E-05	7.937E-05	2.032E-04	3.436E-04	5.838E-05	1.984E-05	7.114E-05	1.494E-04	3.770E+00	1.037E-05	5.940E-04
T7 POAK Class 8	Diesel	2.617E-04	9.835E-03	8.638E-04	3.571E-05	7.251E-05	7.937E-05	2.067E-04	3.586E-04	6.937E-05	1.984E-05	7.235E-05	1.616E-04	3.771E+00	1.215E-05	5.941E-04

T7 Public Class 8	Diesel	3.319E-04	2.384E-02	1.047E-03	4.080E-05	1.412E-04	7.937E-05	2.621E-04	4.827E-04	1.351E-04	1.984E-05	9.175E-05	2.467E-04	4.309E+00	1.541E-05	6.788E-04
T7 Single Concrete/Transit Mix Class 8	Diesel	3.647E-04	9.384E-03	1.395E-03	3.523E-05	2.748E-04	7.937E-05	1.960E-04	5.502E-04	2.629E-04	1.984E-05	6.862E-05	3.514E-04	3.720E+00	1.694E-05	5.861E-04
T7 Single Concrete/Transit Mix Class 8	Natural Gas	3.326E-05	1.150E-03	1.974E-02	0.000E+00	3.214E-06	7.937E-05	1.809E-04	2.635E-04	2.956E-06	1.984E-05	6.331E-05	8.611E-05	2.929E+00	2.328E-03	5.970E-04
T7 Single Dump Class 8	Diesel	1.758E-04	6.734E-03	6.944E-04	3.532E-05	1.263E-04	7.937E-05	1.876E-04	3.932E-04	1.208E-04	1.984E-05	6.565E-05	2.063E-04	3.729E+00	8.166E-06	5.876E-04
T7 Single Dump Class 8	Natural Gas	3.316E-05	1.384E-03	2.296E-02	0.000E+00	2.694E-06	7.937E-05	1.839E-04	2.660E-04	2.476E-06	1.984E-05	6.437E-05	8.668E-05	2.992E+00	2.321E-03	6.100E-04
T7 Single Other Class 8	Diesel	1.693E-04	6.604E-03	6.341E-04	3.518E-05	1.070E-04	7.937E-05	1.857E-04	3.721E-04	1.024E-04	1.984E-05	6.501E-05	1.872E-04	3.716E+00	7.864E-06	5.854E-04
T7 Single Other Class 8	Natural Gas	3.319E-05	1.313E-03	2.199E-02	0.000E+00	2.851E-06	7.937E-05	1.825E-04	2.647E-04	2.621E-06	1.984E-05	6.386E-05	8.633E-05	2.944E+00	2.323E-03	6.002E-04
T7 SWCV Class 8	Diesel	6.273E-05	2.099E-02	1.648E-04	8.463E-05	3.509E-05	7.937E-05	4.630E-04	5.774E-04	3.357E-05	1.984E-05	1.620E-04	2.155E-04	8.938E+00	2.914E-06	1.408E-03
T7 SWCV Class 8	Natural Gas	1.611E-04	4.095E-03	5.529E-02	0.000E+00	1.490E-06	7.937E-05	4.630E-04	5.438E-04	1.371E-06	1.984E-05	1.620E-04	1.833E-04	3.524E+00	1.128E-02	7.185E-04
T7 Tractor Class 8	Diesel	1.607E-04	7.285E-03	6.073E-04	3.326E-05	1.005E-04	7.937E-05	1.819E-04	3.618E-04	9.613E-05	1.984E-05	6.367E-05	1.796E-04	3.512E+00	7.465E-06	5.534E-04
T7 Tractor Class 8	Natural Gas	3.133E-05	1.271E-03	2.194E-02	0.000E+00	2.676E-06	7.937E-05	1.728E-04	2.548E-04	2.460E-06	1.984E-05	6.047E-05	8.278E-05	2.851E+00	2.193E-03	5.812E-04
T7 Utility Class 8	Diesel	8.686E-05	5.314E-03	4.264E-04	3.707E-05	2.429E-05	7.937E-05	2.163E-04	3.199E-04	2.324E-05	1.984E-05	7.569E-05	1.188E-04	3.915E+00	4.034E-06	6.168E-04
T7IS	Gasoline	8.496E-03	1.511E-02	2.637E-01	5.865E-05	1.348E-05	4.409E-05	2.533E-04	3.109E-04	1.274E-05	1.102E-05	8.865E-05	1.124E-04	5.932E+00	1.014E-03	4.702E-04
UBUS	Gasoline	1.788E-05	2.286E-04	1.184E-03	2.520E-05	1.609E-06	1.966E-05	2.102E-04	2.315E-04	1.479E-06	4.914E-06	7.358E-05	7.997E-05	2.549E+00	5.862E-06	2.265E-05
UBUS	Diesel	1.174E-04	1.104E-03	1.195E-04	2.131E-05	7.939E-06	3.995E-05	2.425E-04	2.904E-04	7.597E-06	9.987E-06	8.488E-05	1.025E-04	2.249E+00	5.452E-06	3.543E-04

Source: EMFAC2021 (v1.0.2) Emiss

Region Type: County
Region: Shasta
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh

		MTons/Mile														
Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	Diesel	3.825E-07	4.318E-06	9.904E-07	1.095E-08	1.431E-07	1.200E-08	4.614E-08	2.013E-07	1.369E-07	3.000E-09	1.615E-08	1.561E-07	1.157E-03	1.777E-08	1.822E-07
LDA	Gasoline	1.722E-08	7.918E-08	1.116E-06	3.018E-09	1.465E-09	8.000E-09	6.744E-09	1.621E-08	1.347E-09	2.000E-09	2.361E-09	5.708E-09	3.053E-04	4.025E-09	6.863E-09
LDA	Diesel	3.662E-08	3.924E-07	4.044E-07	2.286E-09	2.312E-08	8.000E-09	6.796E-09	3.791E-08	2.212E-08	2.000E-09	2.379E-09	2.649E-08	2.413E-04	1.701E-09	3.801E-08
LDA	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.362E-09	1.236E-08	0.000E+00	2.000E-09	1.527E-09	3.527E-09	0.000E+00	0.000E+00	0.000E+00
LDA	Plug-in Hybrid	1.459E-09	3.482E-09	2.448E-07	1.475E-09	8.810E-10	8.000E-09	3.714E-09	1.260E-08	8.100E-10	2.000E-09	1.300E-09	4.110E-09	1.492E-04	4.600E-10	6.310E-10
LDT1	Gasoline	5.933E-08	2.748E-07	2.728E-06	3.567E-09	2.863E-09	8.000E-09	8.297E-09	1.916E-08	2.633E-09	2.000E-09	2.904E-09	7.537E-09	3.608E-04	1.247E-08	1.711E-08
LDT1	Diesel	3.140E-07	1.594E-06	1.922E-06	3.826E-09	2.365E-07	8.000E-09	9.426E-09	2.540E-07	2.263E-07	2.000E-09	3.299E-09	2.316E-07	4.038E-04	1.458E-08	6.362E-08
LDT1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.404E-09	1.240E-08	0.000E+00	2.000E-09	1.541E-09	3.541E-09	0.000E+00	0.000E+00	0.000E+00
LDT1	Plug-in Hybrid	1.426E-09	3.402E-09	2.402E-07	1.444E-09	8.000E-10	8.000E-09	3.717E-09	1.252E-08	7.360E-10	2.000E-09	1.301E-09	4.037E-09	1.460E-04	4.530E-10	6.250E-10
LDT2	Gasoline	2.117E-08	1.421E-07	1.338E-06	3.805E-09	1.559E-09	8.000E-09	7.951E-09	1.751E-08	1.434E-09	2.000E-09	2.783E-09	6.217E-09	3.849E-04	4.871E-09	9.675E-09
LDT2	Diesel	2.248E-08	1.579E-07	1.913E-07	3.111E-09	1.195E-08	8.000E-09	7.649E-09	2.760E-08	1.144E-08	2.000E-09	2.677E-09	1.611E-08	3.284E-04	1.044E-09	5.173E-08
LDT2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.354E-09	1.235E-08	0.000E+00	2.000E-09	1.524E-09	3.524E-09	0.000E+00	0.000E+00	0.000E+00
LDT2	Plug-in Hybrid	1.432E-09	3.417E-09	2.411E-07	1.450E-09	9.170E-10	8.000E-09	3.716E-09	1.263E-08	8.430E-10	2.000E-09	1.301E-09	4.144E-09	1.466E-04	4.550E-10	6.270E-10
LHD1	Gasoline	1.044E-07	4.311E-07	2.193E-06	9.569E-09	2.646E-09	8.000E-09	7.800E-08	8.865E-08	2.434E-09	2.000E-09	2.730E-08	3.173E-08	9.679E-04	2.008E-08	2.220E-08
LHD1	Diesel	2.794E-07	3.564E-06	8.717E-07	5.999E-09	6.317E-08	1.200E-08	7.800E-08	1.532E-07	6.043E-08	3.000E-09	2.730E-08	9.073E-08	6.331E-04	1.298E-08	9.974E-08
LHD2	Gasoline	5.449E-08	2.638E-07	1.327E-06	1.038E-08	1.828E-09	8.000E-09	9.100E-08	1.008E-07	1.681E-09	2.000E-09	3.185E-08	3.553E-08	1.050E-03	1.099E-08	1.481E-08
LHD2	Diesel	2.047E-07	2.035E-06	5.598E-07	7.466E-09	4.500E-08	1.200E-08	9.100E-08	1.480E-07	4.306E-08	3.000E-09	3.185E-08	7.791E-08	7.880E-04	9.509E-09	1.241E-07
MCY	Gasoline	1.607E-06	7.852E-07	1.863E-05	1.947E-09	1.900E-09	4.000E-09	1.200E-08	1.790E-08	1.789E-09	1.000E-09	4.200E-09	6.989E-09	1.969E-04	2.238E-07	4.863E-08
MDV	Gasoline	3.969E-08	2.221E-07	1.830E-06	4.609E-09	1.681E-09	8.000E-09	8.219E-09	1.790E-08	1.547E-09	2.000E-09	2.877E-09	6.424E-09	4.662E-04	7.939E-09	1.348E-08
MDV	Diesel	1.551E-08	1.069E-07	2.255E-07	4.007E-09	8.133E-09	8.000E-09	7.730E-09	2.386E-08	7.782E-09	2.000E-09	2.705E-09	1.249E-08	4.229E-04	7.200E-10	6.662E-08
MDV	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.347E-09	1.235E-08	0.000E+00	2.000E-09	1.522E-09	3.522E-09	0.000E+00	0.000E+00	0.000E+00
MDV	Plug-in Hybrid	1.462E-09	3.489E-09	2.457E-07	1.479E-09	1.018E-09	8.000E-09	3.710E-09	1.273E-08	9.360E-10	2.000E-09	1.298E-09	4.234E-09	1.496E-04	4.640E-10	6.380E-10
MH	Gasoline	1.303E-07	6.950E-07	3.474E-06	1.931E-08	2.322E-09	1.200E-08	4.505E-08	5.937E-08	2.138E-09	3.000E-09	1.577E-08	2.091E-08	1.953E-03	2.683E-08	3.732E-08
MH	Diesel	1.720E-07	6.334E-06	5.994E-07	1.020E-08	1.766E-07	1.600E-08	4.484E-08	2.374E-07	1.690E-07	4.000E-09	1.570E-08	1.887E-07	1.077E-03	7.989E-09	1.697E-07
Motor Coach	Diesel	8.561E-08	3.028E-06	3.360E-07	1.669E-08	6.600E-08	1.200E-08	7.695E-08	1.549E-07	6.314E-08	3.000E-09	2.693E-08	9.308E-08	1.762E-03	3.977E-09	2.777E-07
OBUS	Gasoline	1.113E-07	8.018E-07	2.508E-06	1.829E-08	8.610E-10	1.200E-08	4.489E-08	5.775E-08	7.910E-10	3.000E-09	1.571E-08	1.950E-08	1.850E-03	2.236E-08	3.568E-08
PTO	Diesel	1.737E-07	4.882E-06	6.424E-07	2.051E-08	4.561E-08	0.000E+00	0.000E+00	4.561E-08	4.363E-08	0.000E+00	0.000E+00	4.363E-08	2.166E-03	8.067E-09	3.413E-07
SBUS	Gasoline	9.963E-08	8.205E-07	2.432E-06	8.166E-09	1.521E-09	8.000E-09	4.492E-08	5.444E-08	1.398E-09	2.000E-09	1.572E-08	1.912E-08	8.260E-04	2.012E-08	3.897E-08
SBUS	Diesel	1.030E-07	6.649E-06	2.913E-07	1.121E-08	4.492E-08	1.200E-08	4.492E-08	1.018E-07	4.298E-08	3.000E-09	1.572E-08	6.170E-08	1.183E-03	4.783E-09	1.864E-07
SBUS	Natural Gas	5.205E-08	6.479E-07	1.262E-05	0.000E+00	3.674E-09	1.200E-08	4.492E-08	6.059E-08	3.378E-09	3.000E-09	1.572E-08	2.210E-08	1.340E-03	3.643E-06	2.732E-07
T6 CAIRP Class 4	Diesel	4.393E-08	1.278E-06	1.756E-07	1.080E-08	4.105E-08	1.200E-08	4.231E-08	9.536E-08	3.927E-08	3.000E-09	1.481E-08	5.708E-08	1.140E-03	2.040E-09	1.796E-07
T6 CAIRP Class 5	Diesel	3.057E-08	1.035E-06	1.333E-07	1.076E-08	3.097E-08	1.200E-08	4.231E-08	8.528E-08	2.963E-08	3.000E-09	1.481E-08	4.744E-08	1.136E-03	1.420E-09	1.790E-07
T6 CAIRP Class 6	Diesel	4.010E-08	1.195E-06	1.609E-07	1.070E-08	3.780E-08	1.200E-08	4.231E-08	9.212E-08	3.617E-08	3.000E-09	1.481E-08	5.398E-08	1.130E-03	1.863E-09	1.781E-07
T6 CAIRP Class 7	Diesel	4.050E-08	1.428E-06	1.707E-07	1.004E-08	3.799E-08	1.200E-08	4.231E-08	9.231E-08	3.635E-08	3.000E-09	1.481E-08	5.416E-08	1.060E-03	1.881E-09	1.671E-07
T6 Instate Delivery Class 4	Diesel	2.412E-07	3.452E-06	6.597E-07	1.138E-08	9.840E-08	1.200E-08	4.756E-08	1.580E-07	9.414E-08	3.000E-09	1.665E-08	1.138E-07	1.202E-03	1.120E-08	1.893E-07
T6 Instate Delivery Class 5	Diesel	2.172E-07	3.340E-06	5.726E-07	1.163E-08	7.412E-08	1.200E-08	4.756E-08	1.337E-07	7.091E-08	3.000E-09	1.665E-08	9.056E-08	1.229E-03	1.009E-08	1.936E-07
T6 Instate Delivery Class 6	Diesel	2.547E-07	3.820E-06	6.829E-07	1.159E-08	9.789E-08	1.200E-08	4.756E-08	1.575E-07	9.366E-08	3.000E-09	1.665E-08	1.133E-07	1.224E-03	1.183E-08	1.928E-07
T6 Instate Delivery Class 7	Diesel	8.688E-08	2.360E-06	2.629E-07	1.159E-08	2.885E-08	1.200E-08	4.756E-08	8.841E-08	2.760E-08	3.000E-09	1.665E-08	4.725E-08	1.224E-03	4.035E-09	1.929E-07
T6 Instate Other Class 4	Diesel	2.446E-07	4.116E-06	7.172E-07	1.084E-08	1.271E-07	1.200E-08	4.486E-08	1.839E-07	1.216E-07	3.000E-09	1.570E-08	1.403E-07	1.144E-03	1.136E-08	1.803E-07
T6 Instate Other Class 5	Diesel	7.716E-08	1.634E-06	2.518E-07	1.093E-08	3.955E-08	1.200E-08	4.486E-08	9.642E-08	3.784E-08	3.000E-09	1.570E-08	5.654E-08	1.154E-03	3.584E-09	1.818E-07
T6 Instate Other Class 6	Diesel	1.765E-07	2.935E-06	5.328E-07	1.078E-08	9.538E-08	1.200E-08	4.486E-08	1.522E-07	9.125E-08	3.000E-09	1.570E-08	1.100E-07	1.138E-03	8.200E-09	1.793E-07
T6 Instate Other Class 7	Diesel	8.274E-08	2.187E-06	2.739E-07	1.063E-08	4.135E-08	1.200E-08	4.486E-08	9.821E-08	3.956E-08	3.000E-09	1.570E-08	5.826E-08	1.122E-03	3.843E-09	1.768E-07
T6 Instate Tractor Class 6	Diesel	5.113E-08	2.059E-06	1.552E-07	1.096E-08	1.033E-08	1.200E-08	4.486E-08	6.720E-08	9.884E-09	3.000E-09	1.570E-08	2.859E-08	1.158E-03	2.375E-09	1.824E-07
T6 Instate Tractor Class 7	Diesel	1.117E-07	3.485E-06	3.482E-07	1.007E-08	4.487E-08	1.200E-08	4.486E-08	1.017E-07	4.293E-08	3.000E-09	1.570E-08	6.163E-08	1.063E-03	5.189E-09	1.675E-07
T6 OOS Class 4	Diesel	4.595E-08	1.321E-06	1.821E-07	1.079E-08	4.260E-08	1.200E-08	4.231E-08	9.692E-08	4.076E-08	3.000E-09	1.481E-08	5.857E-08	1.139E-03	2.134E-09	1.795E-07
T6 OOS Class 5	Diesel	3.149E-08	1.053E-06	1.371E-07	1.075E-08	3.187E-08	1.200E-08	4.231E-08	8.618E-08	3.049E-08	3.000E-09	1.481E-08	4.830E-08	1.135E-03	1.462E-09	1.789E-07
T6 OOS Class 6	Diesel	4.222E-08	1.240E-06	1.678E-07	1.069E-08	3.944E-08	1.200E-08	4.231E-08	9.376E-08	3.774E-08	3.000E-09	1.481E-08	5.555E-08	1.129E-03	1.961E-09	1.779E-07
T6 OOS Class 7	Diesel	4.571E-08	1.485E-06	1.921E-07	1.005E-08	4.267E-08	1.200E-08	4.231E-08	9.698E-08	4.082E-08	3.000E-09	1.481E-08	5.863E-08	1.061E-03	2.123E-09	1.672E-07
T6 Public Class 4	Diesel	1.172E-07	8.298E-06	2.706E-07	1.227E-08	4.334E-08	1.200E-08	4.617E-08	1.015E-07	4.146E-08	3.000E-09	1.616E-08	6.062E-08	1.295E-03	5.446E-09	2.041E-07
T6 Public Class 5	Diesel	4.945E-08	2.475E-06	1.430E-07	1.177E-08	1.178E-08	1.200E-08	4.617E-08	6.995E-08	1.128E-08	3.000E-09	1.616E-08	3.043E-08	1.242E-03	2.297E-09	1.958E-07
T6 Public Class 6	Diesel	8.877E-08	6.384E-06	2.066E-07	1.203E-08	4.002E-08	1.200E-08	4.617E-08	9.819E-08	3.829E-08	3.000E-09	1.616E-08	5.745E-08	1.271E-03	4.123E-09	2.002E-07
T6 Public Class 7	Diesel	1.323E-07	8.260E-06	2.827E-07	1.232E-08	6.427E-08	1.200E-08	4.617E-08	1.224E-07	6.149E-08	3.000E-09	1.616E-08	8.065E-08	1.301E-03	6.144E-09	2.050E-07
T6 Utility Class 5	Diesel	2.146E-08	1.129E-06	8.724E-08	1.081E-08	5.457E-09	1.200E-08	4.550E-08	6.295E-08	5.221E-09	3.000E-09	1.592E-08	2.415E-08	1.142E-03	9.970E-10	1.799E-07
T6 Utility Class 6	Diesel	3.154E-08	1.753E-06	1.096E-07	1.103E-08	8.959E-09	1.200E-08	4.550E-08	6.646E-08	8.572E-09	3.000E-09	1.592E-08	2.750E-08	1.165E-03	1.465E-09	1.835E-07
T6 Utility Class 7	Diesel	2.358E-08	1.591E-06	8.882E-08	1.100E-08	8.511E-09	1.200E-08	4.550E-08	6.601E-08	8.143E-09	3.000E-09	1.592E-08	2.707E-08	1.162E-03	1.095E-09	1.831E-07
T6TS	Gasoline	1.670E-07	8.849E-07	3.627E-06	1.860E-08	1.661E-09	1.200E-08	4.505E-08	5.871E-08	1.527E-09	3.000E-09	1.577E-08	2.029E-08	1.882E-03	3.151E-08	3.810E-08
T7 CAIRP Class 8	Diesel	5.063E-08	2.779E-06	1.989E-07	1.515E-08	4.793E-08	3.600E-08	7.597E-08	1.599E-07	4.585E-08	9.000E-09	2.659E-08	8.144E-08	1.600E-03	2.352E-09	2.521E-07
T7 NNOOS Class 8	Diesel	8.767E-08	2.889E-06	3.746E-07	1.528E-08	7.943E-08	3.600E-08	7.673E-08	1.922E-07	7.600E-08	9.000E-09	2.686E-08	1.119E-07	1.613E-03	4.072E-09	2.542E-07
T7 NOOS Class 8	Diesel	5.690E-08	2.873E-06	2.222E-07	1.516E-08	5.165E-08	3.600E-08	7.607E-08	1.637E-07	4.941E-08	9.000E-09	2.662E-08	8.504E-08	1.601E-03	2.643E-09	2.522E-07
T7 Other Port Class 8	Diesel	1.013E-07	4.094E-06	3.381E-07	1.619E-08	2.768E-08	3.600E-08	9.219E-08	1.559E-07	2.648E-08	9.000E-09	3.227E-08	6.775E-08	1.710E-03	4.705E-09	2.694E-07
T7 POAK Class 8	Diesel	1.187E-07	4.461E-06	3.918E-07	1.620E-08	3.289E-08	3.600E-08	9.376E-08	1.627E-07	3.147E-08	9.000E-09	3.282E-08	7.328E-08	1.710E-03	5.513E-09	2.695E-07

T7 Public Class 8	Diesel	1.505E-07	1.082E-05	4.751E-07	1.851E-08	6.404E-08	3.600E-08	1.189E-07	2.189E-07	6.127E-08	9.000E-09	4.162E-08	1.119E-07	1.954E-03	6.992E-09	3.079E-07
T7 Single Concrete/Transit Mix Class 8	Diesel	1.654E-07	4.257E-06	6.330E-07	1.598E-08	1.247E-07	3.600E-08	8.893E-08	2.496E-07	1.193E-07	9.000E-09	3.112E-08	1.594E-07	1.687E-03	7.684E-09	2.659E-07
T7 Single Concrete/Transit Mix Class 8	Natural Gas	1.509E-08	5.216E-07	8.954E-06	0.000E+00	1.458E-09	3.600E-08	8.205E-08	1.195E-07	1.341E-09	9.000E-09	2.872E-08	3.906E-08	1.328E-03	1.056E-06	2.708E-07
T7 Single Dump Class 8	Diesel	7.975E-08	3.054E-06	3.150E-07	1.602E-08	5.727E-08	3.600E-08	8.508E-08	1.783E-07	5.479E-08	9.000E-09	2.978E-08	9.357E-08	1.692E-03	3.704E-09	2.665E-07
T7 Single Dump Class 8	Natural Gas	1.504E-08	6.276E-07	1.041E-05	0.000E+00	1.222E-09	3.600E-08	8.342E-08	1.206E-07	1.123E-09	9.000E-09	2.920E-08	3.932E-08	1.357E-03	1.053E-06	2.767E-07
T7 Single Other Class 8	Diesel	7.680E-08	2.996E-06	2.876E-07	1.596E-08	4.853E-08	3.600E-08	8.425E-08	1.688E-07	4.643E-08	9.000E-09	2.949E-08	8.492E-08	1.685E-03	3.567E-09	2.655E-07
T7 Single Other Class 8	Natural Gas	1.505E-08	5.958E-07	9.976E-06	0.000E+00	1.293E-09	3.600E-08	8.277E-08	1.201E-07	1.189E-09	9.000E-09	2.897E-08	3.916E-08	1.336E-03	1.054E-06	2.723E-07
T7 SWCV Class 8	Diesel	2.846E-08	9.519E-06	7.477E-08	3.839E-08	1.592E-08	3.600E-08	2.100E-07	2.619E-07	1.523E-08	9.000E-09	7.350E-08	9.773E-08	4.054E-03	1.322E-09	6.387E-07
T7 SWCV Class 8	Natural Gas	7.308E-08	1.857E-06	2.508E-05	0.000E+00	6.760E-10	3.600E-08	2.100E-07	2.467E-07	6.220E-10	9.000E-09	7.350E-08	8.312E-08	1.599E-03	5.115E-06	3.259E-07
T7 Tractor Class 8	Diesel	7.289E-08	3.305E-06	2.755E-07	1.509E-08	4.558E-08	3.600E-08	8.252E-08	1.641E-07	4.361E-08	9.000E-09	2.888E-08	8.149E-08	1.593E-03	3.386E-09	2.510E-07
T7 Tractor Class 8	Natural Gas	1.421E-08	5.765E-07	9.950E-06	0.000E+00	1.214E-09	3.600E-08	7.838E-08	1.156E-07	1.116E-09	9.000E-09	2.743E-08	3.755E-08	1.293E-03	9.946E-07	2.636E-07
T7 Utility Class 8	Diesel	3.940E-08	2.410E-06	1.934E-07	1.682E-08	1.102E-08	3.600E-08	9.809E-08	1.451E-07	1.054E-08	9.000E-09	3.433E-08	5.388E-08	1.776E-03	1.830E-09	2.798E-07
T7IS	Gasoline	3.854E-06	6.853E-06	1.196E-04	2.660E-08	6.114E-09	2.000E-08	1.149E-07	1.410E-07	5.781E-09	5.000E-09	4.021E-08	5.099E-08	2.691E-03	4.601E-07	2.133E-07
UBUS	Gasoline	8.112E-09	1.037E-07	5.371E-07	1.143E-08	7.300E-10	8.917E-09	9.536E-08	1.050E-07	6.710E-10	2.229E-09	3.338E-08	3.628E-08	1.156E-03	2.659E-09	1.027E-08
UBUS	Diesel	5.325E-08	5.006E-07	5.422E-08	9.664E-09	3.601E-09	1.812E-08	1.100E-07	1.317E-07	3.446E-09	4.530E-09	3.850E-08	4.648E-08	1.020E-03	2.473E-09	1.607E-07

Year 2045 Existing: Criteria Air Pollutants

Source: EMFAC2021 Version 1.0.3 web database. Emission Rates. Orange County (South Coast Air Basin) Subregion

Daily VMT	1,297,028								lbs/day
Vehicle Type	Fuel Type	Percent of VMT	Percent for Fountain Valley (Default)	ROG	NOx	CO	SOx	PM10	PM2.5
All Other Buses	Diesel	0.02%	0.02%	0.0295	0.8756	0.1211	0.0068	0.0490	0.0217
LDA	Gasoline	38.40%	38.40%	3.0896	22.0475	542.2123	2.4758	16.5458	5.2174
LDA	Diesel	0.02%	0.02%	0.0034	0.0183	0.0955	0.0012	0.0108	0.0039
LDA	Electricity	5.45%	5.45%	0.0000	0.0000	0.0000	0.0000	1.9299	0.5509
LDA	Plug-in Hybrid	1.83%	1.83%	0.0576	0.1380	9.6553	0.0585	0.6324	0.1854
LDT1	Gasoline	2.47%	2.47%	0.2297	1.6066	37.8268	0.1852	1.1623	0.3727
LDT1	Diesel	0.00%	0.00%	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
LDT1	Electricity	0.08%	0.08%	0.0000	0.0000	0.0000	0.0000	0.0273	0.0078
LDT1	Plug-in Hybrid	0.06%	0.06%	0.0018	0.0043	0.3025	0.0018	0.0199	0.0058
LDT2	Gasoline	21.34%	21.34%	2.4209	14.4541	355.4677	1.6526	9.9778	3.1819
LDT2	Diesel	0.08%	0.08%	0.0281	0.0658	0.2974	0.0055	0.0464	0.0201
LDT2	Electricity	0.61%	0.61%	0.0000	0.0000	0.0000	0.0000	0.2165	0.0618
LDT2	Plug-in Hybrid	0.58%	0.58%	0.0183	0.0437	3.0590	0.0185	0.2006	0.0588
LHD1	Gasoline	0.82%	0.82%	0.1145	0.7591	13.8351	0.1777	2.0548	0.7175
LHD1	Diesel	0.66%	0.66%	2.1384	11.2993	5.8981	0.1092	2.1860	1.0414
LHD1	Electricity	1.01%	1.01%	0.0000	0.0000	0.0000	0.0000	1.3570	0.4518
LHD2	Gasoline	0.10%	0.10%	0.0106	0.0685	1.6820	0.0234	0.2791	0.0974
LHD2	Diesel	0.32%	0.32%	1.2664	7.0822	3.5234	0.0630	1.2436	0.6039
LHD2	Electricity	0.25%	0.25%	0.0000	0.0000	0.0000	0.0000	0.3804	0.1274
MCY	Gasoline	0.31%	0.31%	7.4280	4.4408	92.2530	0.0162	0.1584	0.0623
MDV	Gasoline	12.01%	12.01%	1.5526	9.4617	210.8100	1.1294	5.6610	1.8088
MDV	Diesel	0.14%	0.14%	0.0196	0.0559	0.5813	0.0122	0.0681	0.0238
MDV	Electricity	0.55%	0.55%	0.0000	0.0000	0.0000	0.0000	0.1939	0.0554
MDV	Plug-in Hybrid	0.36%	0.36%	0.0112	0.0268	1.8726	0.0113	0.1228	0.0360
MH	Gasoline	0.03%	0.03%	0.0111	0.1884	0.1564	0.0187	0.0567	0.0195
MH	Diesel	0.02%	0.02%	0.0618	1.8227	0.1923	0.0063	0.0691	0.0425
Motor Coach	Diesel	0.02%	0.02%	0.0051	0.4561	0.0174	0.0070	0.0568	0.0263
OBUS	Gasoline	0.01%	0.01%	0.0119	0.1185	0.2408	0.0054	0.0202	0.0069
OBUS	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0121	0.0038
PTO	Diesel	0.05%	0.05%	0.0230	4.0031	0.2818	0.0257	0.0063	0.0060
PTO	Electricity	0.05%	0.05%	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SBUS	Gasoline	0.02%	0.02%	0.0036	0.0680	0.0888	0.0033	0.0241	0.0084
SBUS	Diesel	0.04%	0.04%	0.0076	0.3805	0.0570	0.0103	0.0629	0.0229
SBUS	Electricity	0.03%	0.03%	0.0000	0.0000	0.0000	0.0000	0.0318	0.0101
SBUS	Natural Gas	0.00%	0.00%	0.0002	0.0007	0.0357	0.0000	0.0004	0.0001
T6 CAIRP Class 4	Diesel	0.00%	0.00%	0.0001	0.0028	0.0004	0.0002	0.0009	0.0004
T6 CAIRP Class 4	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0007	0.0002
T6 CAIRP Class 5	Diesel	0.00%	0.00%	0.0001	0.0038	0.0006	0.0002	0.0013	0.0005
T6 CAIRP Class 5	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0010	0.0003
T6 CAIRP Class 6	Diesel	0.00%	0.00%	0.0003	0.0100	0.0015	0.0005	0.0033	0.0013
T6 CAIRP Class 6	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0026	0.0008
T6 CAIRP Class 7	Diesel	0.02%	0.02%	0.0037	0.1257	0.0189	0.0055	0.0386	0.0150
T6 CAIRP Class 7	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0067	0.0021
T6 Instate Delivery Class 4	Diesel	0.01%	0.01%	0.0015	0.0920	0.0134	0.0025	0.0154	0.0054
T6 Instate Delivery Class 4	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0095	0.0030
T6 Instate Delivery Class 5	Diesel	0.01%	0.01%	0.0016	0.0946	0.0141	0.0026	0.0163	0.0057
T6 Instate Delivery Class 5	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0101	0.0032
T6 Instate Delivery Class 6	Diesel	0.03%	0.03%	0.0046	0.2704	0.0397	0.0074	0.0460	0.0161
T6 Instate Delivery Class 6	Electricity	0.03%	0.03%	0.0000	0.0000	0.0000	0.0000	0.0284	0.0090
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	0.0039	0.2692	0.0318	0.0047	0.0286	0.0101
T6 Instate Delivery Class 7	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0096	0.0030
T6 Instate Other Class 4	Diesel	0.06%	0.06%	0.0094	0.4686	0.0727	0.0165	0.1029	0.0372
T6 Instate Other Class 4	Electricity	0.07%	0.07%	0.0000	0.0000	0.0000	0.0000	0.0667	0.0210
T6 Instate Other Class 5	Diesel	0.16%	0.16%	0.0252	1.2379	0.1935	0.0441	0.2747	0.0993
T6 Instate Other Class 5	Electricity	0.18%	0.18%	0.0000	0.0000	0.0000	0.0000	0.1779	0.0560
T6 Instate Other Class 6	Diesel	0.08%	0.08%	0.0132	0.6597	0.1014	0.0230	0.1435	0.0519
T6 Instate Other Class 6	Electricity	0.09%	0.09%	0.0000	0.0000	0.0000	0.0000	0.0926	0.0292
T6 Instate Other Class 7	Diesel	0.13%	0.13%	0.0261	1.6457	0.1900	0.0348	0.2190	0.0811
T6 Instate Other Class 7	Electricity	0.09%	0.09%	0.0000	0.0000	0.0000	0.0000	0.0884	0.0279
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	0.0003	0.0174	0.0026	0.0006	0.0038	0.0014
T6 Instate Tractor Class 6	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0026	0.0008

T6 Instate Tractor Class 7	Diesel	0.05%	0.05%	0.0098	0.6824	0.0751	0.0125	0.0868	0.0321
T6 Instate Tractor Class 7	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0113	0.0036
T6 OOS Class 4	Diesel	0.00%	0.00%	0.0001	0.0052	0.0006	0.0002	0.0014	0.0005
T6 OOS Class 5	Diesel	0.00%	0.00%	0.0002	0.0073	0.0009	0.0003	0.0019	0.0007
T6 OOS Class 6	Diesel	0.00%	0.00%	0.0004	0.0186	0.0023	0.0008	0.0051	0.0020
T6 OOS Class 7	Diesel	0.02%	0.02%	0.0034	0.1428	0.0177	0.0050	0.0370	0.0144
T6 Public Class 4	Diesel	0.01%	0.01%	0.0034	0.1468	0.0133	0.0020	0.0124	0.0047
T6 Public Class 4	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0057	0.0018
T6 Public Class 5	Diesel	0.01%	0.01%	0.0040	0.1532	0.0184	0.0031	0.0187	0.0068
T6 Public Class 5	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0087	0.0027
T6 Public Class 6	Diesel	0.01%	0.01%	0.0023	0.1041	0.0109	0.0020	0.0120	0.0045
T6 Public Class 6	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0056	0.0018
T6 Public Class 7	Diesel	0.04%	0.04%	0.0101	0.4402	0.0538	0.0107	0.0641	0.0232
T6 Public Class 7	Electricity	0.02%	0.02%	0.0000	0.0000	0.0000	0.0000	0.0239	0.0075
T6 Utility Class 5	Diesel	0.01%	0.01%	0.0012	0.0450	0.0082	0.0022	0.0138	0.0049
T6 Utility Class 5	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0113	0.0036
T6 Utility Class 6	Diesel	0.00%	0.00%	0.0002	0.0083	0.0016	0.0004	0.0026	0.0009
T6 Utility Class 6	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0021	0.0007
T6 Utility Class 7	Diesel	0.00%	0.00%	0.0003	0.0111	0.0021	0.0006	0.0036	0.0013
T6 Utility Class 7	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0030	0.0009
T6TS	Gasoline	0.07%	0.07%	0.0214	0.1399	0.3539	0.0288	0.1102	0.0379
T6TS	Electricity	0.07%	0.07%	0.0000	0.0000	0.0000	0.0000	0.0714	0.0225
T7 CAIRP Class 8	Diesel	2.54%	2.54%	0.8330	88.3696	2.8183	0.8807	10.7419	4.8134
T7 CAIRP Class 8	Electricity	0.72%	0.72%	0.0000	0.0000	0.0000	0.0000	1.5939	0.4833
T7 NNOOS Class 8	Diesel	3.88%	3.88%	1.2358	148.7595	4.1840	1.2871	16.3450	7.3021
T7 NOOS Class 8	Diesel	1.41%	1.41%	0.4636	55.6458	1.5684	0.4677	6.0138	2.7222
T7 Other Port Class 8	Diesel	0.03%	0.03%	0.0084	1.0445	0.0534	0.0109	0.1232	0.0485
T7 Other Port Class 8	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0177	0.0054
T7 POAK Class 8	Diesel	0.05%	0.05%	0.0157	1.9803	0.0992	0.0198	0.2257	0.0894
T7 POAK Class 8	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0291	0.0089
T7 Public Class 8	Diesel	0.08%	0.08%	0.0808	5.0487	0.3731	0.0347	0.3481	0.1294
T7 Public Class 8	Electricity	0.05%	0.05%	0.0000	0.0000	0.0000	0.0000	0.1274	0.0395
T7 Single Concrete/Transit Mix	Diesel	0.01%	0.01%	0.0023	0.2154	0.0116	0.0036	0.0367	0.0141
T7 Single Concrete/Transit Mix	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0287	0.0087
T7 Single Concrete/Transit Mix	Natural Gas	0.00%	0.00%	0.0001	0.0011	0.0272	0.0000	0.0009	0.0003
T7 Single Dump Class 8	Diesel	0.05%	0.05%	0.0158	1.6408	0.0831	0.0208	0.2067	0.0827
T7 Single Dump Class 8	Electricity	0.04%	0.04%	0.0000	0.0000	0.0000	0.0000	0.1021	0.0312
T7 Single Dump Class 8	Natural Gas	0.00%	0.00%	0.0005	0.0078	0.1699	0.0000	0.0044	0.0015
T7 Single Other Class 8	Diesel	0.21%	0.21%	0.0582	6.0922	0.3028	0.0824	0.8247	0.3273
T7 Single Other Class 8	Electricity	0.19%	0.19%	0.0000	0.0000	0.0000	0.0000	0.4472	0.1365
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	0.0023	0.0291	0.6620	0.0000	0.0186	0.0062
T7 SWCV Class 8	Diesel	0.04%	0.04%	0.0289	1.2233	0.0650	0.0335	0.2898	0.1090
T7 SWCV Class 8	Electricity	0.03%	0.03%	0.0000	0.0000	0.0000	0.0000	0.1158	0.0376
T7 SWCV Class 8	Natural Gas	0.01%	0.01%	0.0048	0.1298	2.7176	0.0000	0.0462	0.0156
T7 Tractor Class 8	Diesel	1.15%	1.15%	0.3394	39.4864	1.5930	0.3998	4.7421	1.9801
T7 Tractor Class 8	Electricity	0.22%	0.22%	0.0000	0.0000	0.0000	0.0000	0.5034	0.1533
T7 Tractor Class 8	Natural Gas	0.01%	0.01%	0.0036	0.0434	0.9597	0.0000	0.0309	0.0102
T7 Utility Class 8	Diesel	0.01%	0.01%	0.0029	0.2802	0.0265	0.0037	0.0365	0.0130
T7 Utility Class 8	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0163	0.0051
T7IS	Gasoline	0.00%	0.00%	0.0029	0.0146	0.1950	0.0001	0.0008	0.0003
T7IS	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0005	0.0001
UBUS	Gasoline	0.03%	0.03%	0.0025	0.0125	0.4188	0.0061	0.0732	0.0256
UBUS	Electricity	0.06%	0.06%	0.0000	0.0000	0.0000	0.0000	0.1269	0.0414
		100.00%	100.00%	21.79	436.31	1,298.13	9.49	89.99	34.16

Year 2045 General Plan Update: Criteria Air Pollutants

Source: EMFAC2021 Version 1.0.2 web database. Onroad Emission Rates. Shasta County.

Daily VMT	1,826,513			lbs/day					
Vehicle Type	Fuel Type	Percent of VMT	Percent for Redding (Default)	ROG	NOx	CO	SOx	PM10	PM2.5
All Other Buses	Diesel	0.02%	0.02%	0.0415	1.2331	0.1706	0.0096	0.0691	0.0306
LDA	Gasoline	38.40%	38.40%	4.3508	31.0480	763.5591	3.4865	23.3003	7.3472
LDA	Diesel	0.02%	0.02%	0.0048	0.0258	0.1345	0.0016	0.0153	0.0055
LDA	Electricity	5.45%	5.45%	0.0000	0.0000	0.0000	0.0000	2.7177	0.7757
LDA	Plug-in Hybrid	1.83%	1.83%	0.0812	0.1943	13.5968	0.0824	0.8906	0.2611
LDT1	Gasoline	2.47%	2.47%	0.3235	2.2625	53.2687	0.2608	1.6368	0.5249
LDT1	Diesel	0.00%	0.00%	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
LDT1	Electricity	0.08%	0.08%	0.0000	0.0000	0.0000	0.0000	0.0385	0.0110
LDT1	Plug-in Hybrid	0.06%	0.06%	0.0025	0.0061	0.4259	0.0026	0.0280	0.0082
LDT2	Gasoline	21.34%	21.34%	3.4092	20.3547	500.5799	2.3272	14.0511	4.4809
LDT2	Diesel	0.08%	0.08%	0.0395	0.0927	0.4188	0.0077	0.0653	0.0283
LDT2	Electricity	0.61%	0.61%	0.0000	0.0000	0.0000	0.0000	0.3049	0.0870
LDT2	Plug-in Hybrid	0.58%	0.58%	0.0257	0.0616	4.3078	0.0261	0.2824	0.0828
LHD1	Gasoline	0.82%	0.82%	0.1613	1.0690	19.4830	0.2503	2.8937	1.0104
LHD1	Diesel	0.66%	0.66%	3.0114	15.9121	8.3059	0.1538	3.0784	1.4666
LHD1	Electricity	1.01%	1.01%	0.0000	0.0000	0.0000	0.0000	1.9109	0.6363
LHD2	Gasoline	0.10%	0.10%	0.0149	0.0965	2.3687	0.0329	0.3930	0.1372
LHD2	Diesel	0.32%	0.32%	1.7834	9.9733	4.9617	0.0887	1.7513	0.8504
LHD2	Electricity	0.25%	0.25%	0.0000	0.0000	0.0000	0.0000	0.5357	0.1795
MCY	Gasoline	0.31%	0.31%	10.4603	6.2537	129.9134	0.0228	0.2230	0.0877
MDV	Gasoline	12.01%	12.01%	2.1864	13.3243	296.8688	1.5904	7.9720	2.5472
MDV	Diesel	0.14%	0.14%	0.0277	0.0787	0.8186	0.0172	0.0959	0.0336
MDV	Electricity	0.55%	0.55%	0.0000	0.0000	0.0000	0.0000	0.2730	0.0780
MDV	Plug-in Hybrid	0.36%	0.36%	0.0158	0.0377	2.6371	0.0160	0.1729	0.0507
MH	Gasoline	0.03%	0.03%	0.0156	0.2653	0.2203	0.0263	0.0798	0.0274
MH	Diesel	0.02%	0.02%	0.0870	2.5667	0.2708	0.0089	0.0973	0.0598
Motor Coach	Diesel	0.02%	0.02%	0.0072	0.6423	0.0245	0.0099	0.0800	0.0370
OBUS	Gasoline	0.01%	0.01%	0.0167	0.1669	0.3391	0.0076	0.0284	0.0097
OBUS	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0171	0.0054
PTO	Diesel	0.05%	0.05%	0.0324	5.6373	0.3968	0.0362	0.0089	0.0085
PTO	Electricity	0.05%	0.05%	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SBUS	Gasoline	0.02%	0.02%	0.0050	0.0958	0.1250	0.0046	0.0339	0.0118
SBUS	Diesel	0.04%	0.04%	0.0107	0.5359	0.0803	0.0144	0.0886	0.0322
SBUS	Electricity	0.03%	0.03%	0.0000	0.0000	0.0000	0.0000	0.0448	0.0142
SBUS	Natural Gas	0.00%	0.00%	0.0003	0.0010	0.0503	0.0000	0.0005	0.0002
T6 CAIRP Class 4	Diesel	0.00%	0.00%	0.0001	0.0039	0.0006	0.0002	0.0013	0.0005
T6 CAIRP Class 4	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0010	0.0003
T6 CAIRP Class 5	Diesel	0.00%	0.00%	0.0002	0.0054	0.0008	0.0003	0.0018	0.0007
T6 CAIRP Class 5	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0014	0.0004
T6 CAIRP Class 6	Diesel	0.00%	0.00%	0.0004	0.0141	0.0021	0.0008	0.0047	0.0018
T6 CAIRP Class 6	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0037	0.0012
T6 CAIRP Class 7	Diesel	0.02%	0.02%	0.0052	0.1770	0.0267	0.0077	0.0544	0.0211
T6 CAIRP Class 7	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0095	0.0030
T6 Instate Delivery Class 4	Diesel	0.01%	0.01%	0.0021	0.1296	0.0189	0.0035	0.0217	0.0076
T6 Instate Delivery Class 4	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0134	0.0042
T6 Instate Delivery Class 5	Diesel	0.01%	0.01%	0.0023	0.1332	0.0198	0.0037	0.0230	0.0080
T6 Instate Delivery Class 5	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0142	0.0045
T6 Instate Delivery Class 6	Diesel	0.03%	0.03%	0.0064	0.3808	0.0560	0.0105	0.0647	0.0226
T6 Instate Delivery Class 6	Electricity	0.03%	0.03%	0.0000	0.0000	0.0000	0.0000	0.0400	0.0127
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	0.0055	0.3791	0.0448	0.0066	0.0402	0.0143
T6 Instate Delivery Class 7	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0135	0.0043
T6 Instate Other Class 4	Diesel	0.06%	0.06%	0.0133	0.6599	0.1024	0.0232	0.1449	0.0524
T6 Instate Other Class 4	Electricity	0.07%	0.07%	0.0000	0.0000	0.0000	0.0000	0.0939	0.0296
T6 Instate Other Class 5	Diesel	0.16%	0.16%	0.0355	1.7433	0.2725	0.0620	0.3868	0.1398
T6 Instate Other Class 5	Electricity	0.18%	0.18%	0.0000	0.0000	0.0000	0.0000	0.2505	0.0789
T6 Instate Other Class 6	Diesel	0.08%	0.08%	0.0186	0.9291	0.1428	0.0324	0.2021	0.0731
T6 Instate Other Class 6	Electricity	0.09%	0.09%	0.0000	0.0000	0.0000	0.0000	0.1305	0.0411
T6 Instate Other Class 7	Diesel	0.13%	0.13%	0.0367	2.3176	0.2675	0.0491	0.3084	0.1142
T6 Instate Other Class 7	Electricity	0.09%	0.09%	0.0000	0.0000	0.0000	0.0000	0.1245	0.0392
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	0.0005	0.0245	0.0037	0.0009	0.0053	0.0019
T6 Instate Tractor Class 6	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0036	0.0011
T6 Instate Tractor Class 7	Diesel	0.05%	0.05%	0.0138	0.9610	0.1058	0.0177	0.1223	0.0452
T6 Instate Tractor Class 7	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0159	0.0050
T6 OOS Class 4	Diesel	0.00%	0.00%	0.0002	0.0074	0.0009	0.0003	0.0020	0.0008
T6 OOS Class 5	Diesel	0.00%	0.00%	0.0002	0.0102	0.0012	0.0004	0.0027	0.0011

T6 OOS Class 6	Diesel	0.00%	0.00%	0.0006	0.0262	0.0032	0.0011	0.0071	0.0027
T6 OOS Class 7	Diesel	0.02%	0.02%	0.0049	0.2011	0.0249	0.0070	0.0521	0.0203
T6 Public Class 4	Diesel	0.01%	0.01%	0.0048	0.2067	0.0188	0.0029	0.0175	0.0067
T6 Public Class 4	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0080	0.0025
T6 Public Class 5	Diesel	0.01%	0.01%	0.0056	0.2157	0.0259	0.0044	0.0263	0.0096
T6 Public Class 5	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0122	0.0039
T6 Public Class 6	Diesel	0.01%	0.01%	0.0032	0.1466	0.0154	0.0028	0.0170	0.0063
T6 Public Class 6	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0078	0.0025
T6 Public Class 7	Diesel	0.04%	0.04%	0.0142	0.6199	0.0758	0.0150	0.0902	0.0327
T6 Public Class 7	Electricity	0.02%	0.02%	0.0000	0.0000	0.0000	0.0000	0.0336	0.0106
T6 Utility Class 5	Diesel	0.01%	0.01%	0.0017	0.0633	0.0116	0.0031	0.0194	0.0069
T6 Utility Class 5	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0159	0.0050
T6 Utility Class 6	Diesel	0.00%	0.00%	0.0003	0.0117	0.0022	0.0006	0.0037	0.0013
T6 Utility Class 6	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0030	0.0009
T6 Utility Class 7	Diesel	0.00%	0.00%	0.0004	0.0156	0.0030	0.0008	0.0050	0.0018
T6 Utility Class 7	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0042	0.0013
T6TS	Gasoline	0.07%	0.07%	0.0301	0.1970	0.4984	0.0406	0.1552	0.0534
T6TS	Electricity	0.07%	0.07%	0.0000	0.0000	0.0000	0.0000	0.1005	0.0317
T7 CAIRP Class 8	Diesel	2.54%	2.54%	1.1731	124.4446	3.9688	1.2403	15.1271	6.7784
T7 CAIRP Class 8	Electricity	0.72%	0.72%	0.0000	0.0000	0.0000	0.0000	2.2446	0.6806
T7 NNOOS Class 8	Diesel	3.88%	3.88%	1.7403	209.4874	5.8921	1.8125	23.0175	10.2830
T7 NOOS Class 8	Diesel	1.41%	1.41%	0.6529	78.3620	2.2087	0.6587	8.4689	3.8334
T7 Other Port Class 8	Diesel	0.03%	0.03%	0.0119	1.4709	0.0751	0.0154	0.1735	0.0683
T7 Other Port Class 8	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0249	0.0076
T7 POAK Class 8	Diesel	0.05%	0.05%	0.0221	2.7887	0.1398	0.0279	0.3179	0.1259
T7 POAK Class 8	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0410	0.0126
T7 Public Class 8	Diesel	0.08%	0.08%	0.1137	7.1097	0.5254	0.0488	0.4902	0.1822
T7 Public Class 8	Electricity	0.05%	0.05%	0.0000	0.0000	0.0000	0.0000	0.1794	0.0556
T7 Single Concrete/Transit Mix Class 8	Diesel	0.01%	0.01%	0.0032	0.3034	0.0163	0.0051	0.0517	0.0199
T7 Single Concrete/Transit Mix Class 8	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0404	0.0123
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.00%	0.00%	0.0001	0.0016	0.0383	0.0000	0.0012	0.0004
T7 Single Dump Class 8	Diesel	0.05%	0.05%	0.0223	2.3106	0.1170	0.0293	0.2911	0.1165
T7 Single Dump Class 8	Electricity	0.04%	0.04%	0.0000	0.0000	0.0000	0.0000	0.1438	0.0439
T7 Single Dump Class 8	Natural Gas	0.00%	0.00%	0.0008	0.0110	0.2393	0.0000	0.0062	0.0021
T7 Single Other Class 8	Diesel	0.21%	0.21%	0.0819	8.5793	0.4264	0.1161	1.1613	0.4609
T7 Single Other Class 8	Electricity	0.19%	0.19%	0.0000	0.0000	0.0000	0.0000	0.6297	0.1922
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	0.0032	0.0409	0.9322	0.0000	0.0262	0.0087
T7 SWCV Class 8	Diesel	0.04%	0.04%	0.0408	1.7227	0.0915	0.0472	0.4080	0.1535
T7 SWCV Class 8	Electricity	0.03%	0.03%	0.0000	0.0000	0.0000	0.0000	0.1631	0.0529
T7 SWCV Class 8	Natural Gas	0.01%	0.01%	0.0068	0.1828	3.8270	0.0000	0.0651	0.0220
T7 Tractor Class 8	Diesel	1.15%	1.15%	0.4780	55.6059	2.2433	0.5630	6.6779	2.7885
T7 Tractor Class 8	Electricity	0.22%	0.22%	0.0000	0.0000	0.0000	0.0000	0.7090	0.2159
T7 Tractor Class 8	Natural Gas	0.01%	0.01%	0.0051	0.0611	1.3515	0.0000	0.0435	0.0144
T7 Utility Class 8	Diesel	0.01%	0.01%	0.0040	0.3946	0.0373	0.0053	0.0515	0.0183
T7 Utility Class 8	Electricity	0.01%	0.01%	0.0000	0.0000	0.0000	0.0000	0.0230	0.0071
T7IS	Gasoline	0.00%	0.00%	0.0040	0.0205	0.2746	0.0002	0.0011	0.0004
T7IS	Electricity	0.00%	0.00%	0.0000	0.0000	0.0000	0.0000	0.0006	0.0002
UBUS	Gasoline	0.03%	0.03%	0.0035	0.0176	0.5898	0.0085	0.1031	0.0360
UBUS	Electricity	0.06%	0.06%	0.0000	0.0000	0.0000	0.0000	0.1787	0.0582
		100.00%	100.00%	30.69	614.43	1,828.07	13.36	126.72	48.11

Year 2045 General Plan Update: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Shasta County.

Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the 2008 Climate Change Scoping Plan Measure Documentation Supplement.

				CO_2	CH_4	N_2O	
				AR5 GWP	AR5 GWP	AR5 GWP	
Annual VMT	**633,799,838**			1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Percent for Redding (Default)**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
All Other Buses	Diesel	0.02%	0.02%	159	0.000	0.025	166
LDA	Gasoline	38.40%	38.40%	55,518	0.236	0.793	55,735
LDA	Diesel	0.02%	0.02%	27	0.000	0.004	28
LDA	Electricity	5.45%	5.45%	0	0.000	0.000	0
LDA	Plug-in Hybrid	1.83%	1.83%	1,311	0.004	0.005	1,312
LDT1	Gasoline	2.47%	2.47%	4,153	0.017	0.054	4,168
LDT1	Diesel	0.00%	0.00%	0	0.000	0.000	0
LDT1	Electricity	0.08%	0.08%	0	0.000	0.000	0
LDT1	Plug-in Hybrid	0.06%	0.06%	41	0.000	0.000	41
LDT2	Gasoline	21.34%	21.34%	37,055	0.176	0.477	37,186
LDT2	Diesel	0.08%	0.08%	128	0.000	0.020	133
LDT2	Electricity	0.61%	0.61%	0	0.000	0.000	0
LDT2	Plug-in Hybrid	0.58%	0.58%	415	0.001	0.002	416
LHD1	Gasoline	0.82%	0.82%	3,984	0.007	0.013	3,988
LHD1	Diesel	0.66%	0.66%	2,555	0.022	0.403	2,662
LHD1	Electricity	1.01%	1.01%	0	0.000	0.000	0
LHD2	Gasoline	0.10%	0.10%	524	0.001	0.001	524
LHD2	Diesel	0.32%	0.32%	1,473	0.013	0.232	1,535
LHD2	Electricity	0.25%	0.25%	0	0.000	0.000	0
MCY	Gasoline	0.31%	0.31%	363	0.268	0.072	389
MDV	Gasoline	12.01%	12.01%	25,323	0.108	0.284	25,401
MDV	Diesel	0.14%	0.14%	286	0.000	0.045	297
MDV	Electricity	0.55%	0.55%	0	0.000	0.000	0
MDV	Plug-in Hybrid	0.36%	0.36%	254	0.001	0.001	254
MH	Gasoline	0.03%	0.03%	418	0.001	0.004	419
MH	Diesel	0.02%	0.02%	148	0.001	0.023	154
Motor Coach	Diesel	0.02%	0.02%	165	0.000	0.026	171
OBUS	Gasoline	0.01%	0.01%	121	0.001	0.001	121
OBUS	Electricity	0.01%	0.01%	0	0.000	0.000	0
PTO	Diesel	0.05%	0.05%	602	0.000	0.095	627
PTO	Electricity	0.05%	0.05%	0	0.000	0.000	0
SBUS	Gasoline	0.02%	0.02%	74	0.000	0.001	74
SBUS	Diesel	0.04%	0.04%	240	0.000	0.038	250
SBUS	Electricity	0.03%	0.03%	0	0.000	0.000	0
SBUS	Natural Gas	0.00%	0.00%	1	0.003	0.000	2
T6 CAIRP Class 4	Diesel	0.00%	0.00%	4	0.000	0.001	4
T6 CAIRP Class 4	Electricity	0.00%	0.00%	0	0.000	0.000	0
T6 CAIRP Class 5	Diesel	0.00%	0.00%	5	0.000	0.001	5
T6 CAIRP Class 5	Electricity	0.00%	0.00%	0	0.000	0.000	0
T6 CAIRP Class 6	Diesel	0.00%	0.00%	13	0.000	0.002	13
T6 CAIRP Class 6	Electricity	0.00%	0.00%	0	0.000	0.000	0
T6 CAIRP Class 7	Diesel	0.02%	0.02%	128	0.000	0.020	133
T6 CAIRP Class 7	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 Instate Delivery Class 4	Diesel	0.01%	0.01%	58	0.000	0.009	61
T6 Instate Delivery Class 4	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 Instate Delivery Class 5	Diesel	0.01%	0.01%	62	0.000	0.010	64
T6 Instate Delivery Class 5	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 Instate Delivery Class 6	Diesel	0.03%	0.03%	174	0.000	0.027	181
T6 Instate Delivery Class 6	Electricity	0.03%	0.03%	0	0.000	0.000	0
T6 Instate Delivery Class 7	Diesel	0.02%	0.02%	110	0.000	0.017	115
T6 Instate Delivery Class 7	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 Instate Other Class 4	Diesel	0.06%	0.06%	386	0.000	0.061	402
T6 Instate Other Class 4	Electricity	0.07%	0.07%	0	0.000	0.000	0
T6 Instate Other Class 5	Diesel	0.16%	0.16%	1,031	0.000	0.162	1,074
T6 Instate Other Class 5	Electricity	0.18%	0.18%	0	0.000	0.000	0
T6 Instate Other Class 6	Diesel	0.08%	0.08%	538	0.000	0.085	561
T6 Instate Other Class 6	Electricity	0.09%	0.09%	0	0.000	0.000	0
T6 Instate Other Class 7	Diesel	0.13%	0.13%	816	0.000	0.129	850

Year 2045 General Plan Update: Greenhouse Gas Emissions

Source: EMFAC2021 Version 1.0.2 web database. Shasta County.

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				CO_2	CH_4	N_2O	
				AR5 GWP	AR5 GWP	AR5 GWP	
Annual VMT	**633,799,838**			1	28	265	
Vehicle Type	**Fuel Type**	**Percent of VMT**	**Percent for Redding (Default)**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
T6 Instate Other Class 7	Electricity	0.09%	0.09%	0	0.000	0.000	0
T6 Instate Tractor Class 6	Diesel	0.00%	0.00%	14	0.000	0.002	15
T6 Instate Tractor Class 6	Electricity	0.00%	0.00%	0	0.000	0.000	0
T6 Instate Tractor Class 7	Diesel	0.05%	0.05%	294	0.000	0.046	306
T6 Instate Tractor Class 7	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 OOS Class 4	Diesel	0.00%	0.00%	5	0.000	0.001	5
T6 OOS Class 5	Diesel	0.00%	0.00%	7	0.000	0.001	7
T6 OOS Class 6	Diesel	0.00%	0.00%	18	0.000	0.003	19
T6 OOS Class 7	Diesel	0.02%	0.02%	117	0.000	0.018	122
T6 Public Class 4	Diesel	0.01%	0.01%	48	0.000	0.008	50
T6 Public Class 4	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 Public Class 5	Diesel	0.01%	0.01%	74	0.000	0.012	77
T6 Public Class 5	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 Public Class 6	Diesel	0.01%	0.01%	47	0.000	0.007	49
T6 Public Class 6	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 Public Class 7	Diesel	0.04%	0.04%	249	0.000	0.039	260
T6 Public Class 7	Electricity	0.02%	0.02%	0	0.000	0.000	0
T6 Utility Class 5	Diesel	0.01%	0.01%	52	0.000	0.008	54
T6 Utility Class 5	Electricity	0.01%	0.01%	0	0.000	0.000	0
T6 Utility Class 6	Diesel	0.00%	0.00%	10	0.000	0.002	10
T6 Utility Class 6	Electricity	0.00%	0.00%	0	0.000	0.000	0
T6 Utility Class 7	Diesel	0.00%	0.00%	13	0.000	0.002	14
T6 Utility Class 7	Electricity	0.00%	0.00%	0	0.000	0.000	0
T6TS	Gasoline	0.07%	0.07%	647	0.001	0.003	647
T6TS	Electricity	0.07%	0.07%	0	0.000	0.000	0
T7 CAIRP Class 8	Diesel	2.54%	2.54%	20,615	0.009	3.248	21,476
T7 CAIRP Class 8	Electricity	0.72%	0.72%	0	0.000	0.000	0
T7 NNOOS Class 8	Diesel	3.88%	3.88%	30,127	0.013	4.747	31,386
T7 NOOS Class 8	Diesel	1.41%	1.41%	10,948	0.005	1.725	11,405
T7 Other Port Class 8	Diesel	0.03%	0.03%	255	0.000	0.040	266
T7 Other Port Class 8	Electricity	0.01%	0.01%	0	0.000	0.000	0
T7 POAK Class 8	Diesel	0.05%	0.05%	464	0.000	0.073	484
T7 POAK Class 8	Electricity	0.01%	0.01%	0	0.000	0.000	0
T7 Public Class 8	Diesel	0.08%	0.08%	811	0.001	0.128	845
T7 Public Class 8	Electricity	0.05%	0.05%	0	0.000	0.000	0
T7 Single Concrete/Transit Mix Class 8	Diesel	0.01%	0.01%	85	0.000	0.013	89
T7 Single Concrete/Transit Mix Class 8	Electricity	0.01%	0.01%	0	0.000	0.000	0
T7 Single Concrete/Transit Mix Class 8	Natural Gas	0.00%	0.00%	2	0.002	0.000	2
T7 Single Dump Class 8	Diesel	0.05%	0.05%	487	0.000	0.077	508
T7 Single Dump Class 8	Electricity	0.04%	0.04%	0	0.000	0.000	0
T7 Single Dump Class 8	Natural Gas	0.00%	0.00%	9	0.008	0.002	10
T7 Single Other Class 8	Diesel	0.21%	0.21%	1,930	0.001	0.304	2,010
T7 Single Other Class 8	Electricity	0.19%	0.19%	0	0.000	0.000	0
T7 Single Other Class 8	Natural Gas	0.01%	0.01%	37	0.035	0.008	40
T7 SWCV Class 8	Diesel	0.04%	0.04%	784	0.000	0.123	816
T7 SWCV Class 8	Electricity	0.03%	0.03%	0	0.000	0.000	0
T7 SWCV Class 8	Natural Gas	0.01%	0.01%	58	0.075	0.012	63
T7 Tractor Class 8	Diesel	1.15%	1.15%	9,358	0.003	1.474	9,749
T7 Tractor Class 8	Electricity	0.22%	0.22%	0	0.000	0.000	0
T7 Tractor Class 8	Natural Gas	0.01%	0.01%	60	0.056	0.012	64
T7 Utility Class 8	Diesel	0.01%	0.01%	87	0.000	0.014	91
T7 Utility Class 8	Electricity	0.01%	0.01%	0	0.000	0.000	0
T7IS	Gasoline	0.00%	0.00%	3	0.000	0.000	3
T7IS	Electricity	0.00%	0.00%	0	0.000	0.000	0
UBUS	Gasoline	0.03%	0.03%	136	0.000	0.000	136
UBUS	Electricity	0.06%	0.06%	0	0.000	0.000	0
		100.00%	**100.00%**	**216,512**	**1**	**15**	**220,596**

Source: EMFAC2021 (v1.0.2) Emission Rates

Region Type: County
Region: Shasta
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

			g/mile															2.205E-03
Vehicle Category	Fuel	VMT Total	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM10_PMTW	PM10_PMBW	PM10_TOTAL	PM2.5_RUNEX	PM2.5_PMTW	PM2.5_PMBW	PM2.5_TOTAL	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX	% of VMT
All Other Buses	Diesel	1,992	4.27E-02	1.27E+00	1.75E-01	9.85E-03	1.29E-02	1.20E-02	4.61E-02	7.10E-02	1.23E-02	3.00E-03	1.61E-02	3.15E-02	1.04E+03	1.98E-03	1.64E-01	0.02%
LDA	Gasoline	3,167,299	2.81E-03	2.01E-02	4.94E-01	2.26E-03	4.87E-04	8.00E-03	6.58E-03	1.51E-02	4.48E-04	2.00E-03	2.30E-03	4.75E-03	2.28E+02	9.70E-04	3.26E-03	38.40%
LDA	Diesel	1,937	5.12E-03	2.73E-02	1.42E-01	1.72E-03	1.54E-03	8.00E-03	6.61E-03	1.62E-02	1.47E-03	2.00E-03	2.32E-03	5.78E-03	1.81E+02	2.38E-04	2.85E-02	0.02%
LDA	Electricity	449,157	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00	5.45%
LDA	Plug-in Hybri	151,034	1.10E-03	2.64E-03	1.84E-01	1.12E-03	2.00E-04	8.00E-03	3.88E-03	1.21E-02	1.84E-04	2.00E-03	1.36E-03	3.54E-03	1.13E+02	3.35E-04	4.46E-04	1.83%
LDT1	Gasoline	203,479	3.26E-03	2.28E-02	5.36E-01	2.63E-03	5.56E-04	8.00E-03	7.92E-03	1.65E-02	5.11E-04	2.00E-03	2.77E-03	5.28E-03	2.66E+02	1.08E-03	3.46E-03	2.47%
LDT1	Diesel	2	1.21E-02	2.91E-02	1.28E-01	3.16E-03	4.09E-03	8.00E-03	7.83E-03	1.99E-02	3.92E-03	2.00E-03	2.74E-03	8.66E-03	3.33E+02	5.61E-04	5.25E-02	0.00%
LDT1	Electricity	6,362	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00	0.08%
LDT1	Plug-in Hybri	4,746	1.10E-03	2.63E-03	1.84E-01	1.11E-03	1.92E-04	8.00E-03	3.88E-03	1.21E-02	1.77E-04	2.00E-03	1.36E-03	3.54E-03	1.13E+02	3.34E-04	4.44E-04	0.06%
LDT2	Gasoline	1,760,491	3.97E-03	2.37E-02	5.82E-01	2.71E-03	5.11E-04	8.00E-03	7.84E-03	1.64E-02	4.70E-04	2.00E-03	2.74E-03	5.21E-03	2.74E+02	1.30E-03	3.52E-03	21.34%
LDT2	Diesel	6,718	1.20E-02	2.83E-02	1.28E-01	2.34E-03	4.07E-03	8.00E-03	7.83E-03	1.99E-02	3.90E-03	2.00E-03	2.74E-03	8.64E-03	2.47E+02	5.60E-04	3.89E-02	0.08%
LDT2	Electricity	50,379	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00	0.61%
LDT2	Plug-in Hybri	47,898	1.10E-03	2.63E-03	1.84E-01	1.12E-03	1.98E-04	8.00E-03	3.88E-03	1.21E-02	1.82E-04	2.00E-03	1.36E-03	3.54E-03	1.13E+02	3.34E-04	4.43E-04	0.58%
LHD1	Gasoline	67,918	4.86E-03	3.22E-02	5.88E-01	7.55E-03	1.28E-03	8.00E-03	7.80E-02	8.73E-02	1.17E-03	2.00E-03	2.73E-02	3.05E-02	7.64E+02	1.39E-03	2.44E-03	0.82%
LHD1	Diesel	54,278	1.14E-01	6.01E-01	3.13E-01	5.81E-03	2.62E-02	1.20E-02	7.80E-02	1.16E-01	2.51E-02	3.00E-03	2.73E-02	5.54E-02	6.13E+02	5.28E-03	9.65E-02	0.66%
LHD1	Electricity	83,289	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	3.90E-02	4.70E-02	0.00E+00	2.00E-03	1.37E-02	1.57E-02	0.00E+00	0.00E+00	0.00E+00	1.01%
LHD2	Gasoline	8,031	3.81E-03	2.46E-02	6.04E-01	8.40E-03	1.24E-03	8.00E-03	9.10E-02	1.00E-01	1.14E-03	2.00E-03	3.19E-02	3.50E-02	8.49E+02	1.15E-03	2.34E-03	0.10%
LHD2	Diesel	26,539	1.38E-01	7.70E-01	3.83E-01	6.85E-03	3.22E-02	1.20E-02	9.10E-02	1.35E-01	3.08E-02	3.00E-03	3.19E-02	6.56E-02	7.23E+02	6.39E-03	1.14E-01	0.32%
LHD2	Electricity	20,511	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.55E-02	5.35E-02	0.00E+00	2.00E-03	1.59E-02	1.79E-02	0.00E+00	0.00E+00	0.00E+00	0.25%
MCY	Gasoline	25,350	8.45E-01	5.05E-01	1.05E+01	1.84E-03	2.02E-03	4.00E-03	1.20E-02	1.80E-02	1.89E-03	1.00E-03	4.20E-03	7.09E-03	1.86E+02	1.37E-01	3.69E-02	0.31%
MDV	Gasoline	990,893	4.52E-03	2.75E-02	6.14E-01	3.29E-03	5.23E-04	8.00E-03	7.96E-03	1.65E-02	4.81E-04	2.00E-03	2.79E-03	5.27E-03	3.33E+02	1.42E-03	3.74E-03	12.01%
MDV	Diesel	11,317	5.01E-03	1.43E-02	1.48E-01	3.11E-03	1.32E-03	8.00E-03	8.04E-03	1.74E-02	1.26E-03	2.00E-03	2.82E-03	6.08E-03	3.28E+02	2.33E-04	5.17E-02	0.14%
MDV	Electricity	45,096	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.00E-03	4.40E-03	1.24E-02	0.00E+00	2.00E-03	1.54E-03	3.54E-03	0.00E+00	0.00E+00	0.00E+00	0.55%
MDV	Plug-in Hybri	29,306	1.10E-03	2.64E-03	1.84E-01	1.12E-03	2.00E-04	8.00E-03	3.89E-03	1.21E-02	1.84E-04	2.00E-03	1.36E-03	3.54E-03	1.13E+02	3.34E-04	4.42E-04	0.36%
MH	Gasoline	2,796	1.15E-02	1.94E-01	1.61E-01	1.93E-02	1.45E-03	1.20E-02	4.50E-02	5.85E-02	1.33E-03	3.00E-03	1.58E-02	2.01E-02	1.95E+03	4.03E-03	1.81E-02	0.03%
MH	Diesel	1,773	1.01E-01	2.97E+00	3.13E-01	1.03E-02	5.16E-02	1.60E-02	4.48E-02	1.12E-01	4.94E-02	4.00E-03	1.57E-02	6.91E-02	1.09E+03	4.67E-03	1.71E-01	0.02%
Motor Coach	Diesel	1,399	1.05E-02	9.41E-01	3.59E-02	1.45E-02	2.37E-02	1.20E-02	8.15E-02	1.17E-01	2.26E-02	3.00E-03	2.85E-02	5.42E-02	1.53E+03	4.89E-04	2.41E-01	0.02%
OBUS	Gasoline	1,001	3.42E-02	3.41E-01	6.94E-01	1.55E-02	1.25E-03	1.20E-02	4.49E-02	5.81E-02	1.15E-03	3.00E-03	1.57E-02	1.99E-02	1.57E+03	7.18E-03	1.84E-02	0.01%
OBUS	Electricity	1,015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.86E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
PTO	Diesel	4,477	1.48E-02	2.58E+00	1.82E-01	1.66E-02	4.07E-03	0.00E+00	0.00E+00	4.07E-03	3.90E-03	0.00E+00	0.00E+00	3.90E-03	1.75E+03	6.88E-04	2.76E-01	0.05%
PTO	Electricity	4,119	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.05%
SBUS	Gasoline	1,284	8.04E-03	1.53E-01	2.00E-01	7.38E-03	1.21E-03	8.00E-03	4.49E-02	5.41E-02	1.12E-03	2.00E-03	1.57E-02	1.88E-02	7.47E+02	1.89E-03	1.37E-02	0.02%
SBUS	Diesel	3,012	7.30E-03	3.64E-01	5.46E-02	9.82E-03	3.34E-03	1.20E-02	4.49E-02	6.03E-02	3.19E-03	3.00E-03	1.57E-02	2.19E-02	1.04E+03	3.39E-04	1.63E-01	0.04%
SBUS	Electricity	2,721	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-02	2.25E-02	3.38E-02	0.00E+00	2.83E-03	7.86E-03	1.07E-02	0.00E+00	0.00E+00	0.00E+00	0.03%
SBUS	Natural Gas	18	3.13E-02	1.17E-01	5.80E+00	0.00E+00	3.67E-03	1.20E-02	4.49E-02	6.06E-02	3.38E-03	3.00E-03	1.57E-02	2.21E-02	1.04E+03	2.19E+00	2.12E-01	0.00%
T6 CAIRP Class 4	Diesel	45	5.33E-03	1.78E-01	2.73E-02	9.62E-03	5.38E-03	1.20E-02	4.23E-02	5.97E-02	5.14E-03	3.00E-03	1.48E-02	2.30E-02	1.02E+03	2.48E-04	1.60E-01	0.00%
T6 CAIRP Class 4	Electricity	63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.12E-02	3.32E-02	0.00E+00	3.00E-03	7.41E-03	1.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00%
T6 CAIRP Class 5	Diesel	62	5.35E-03	1.79E-01	2.74E-02	9.62E-03	5.39E-03	1.20E-02	4.23E-02	5.97E-02	5.15E-03	3.00E-03	1.48E-02	2.30E-02	1.02E+03	2.48E-04	1.60E-01	0.00%
T6 CAIRP Class 5	Electricity	87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.12E-02	3.32E-02	0.00E+00	3.00E-03	7.41E-03	1.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00%
T6 CAIRP Class 6	Diesel	161	5.32E-03	1.79E-01	2.73E-02	9.61E-03	5.40E-03	1.20E-02	4.23E-02	5.97E-02	5.16E-03	3.00E-03	1.48E-02	2.30E-02	1.01E+03	2.47E-04	1.60E-01	0.00%
T6 CAIRP Class 6	Electricity	228	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.12E-02	3.32E-02	0.00E+00	3.00E-03	7.41E-03	1.04E-02	0.00E+00	0.00E+00	0.00E+00	0.00%
T6 CAIRP Class 7	Diesel	1,856	5.74E-03	1.95E-01	2.94E-02	8.49E-03	5.72E-03	1.20E-02	4.23E-02	6.00E-02	5.47E-03	3.00E-03	1.48E-02	2.33E-02	8.96E+02	2.67E-04	1.41E-01	0.02%
T6 CAIRP Class 7	Electricity	584	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.12E-02	3.32E-02	0.00E+00	3.00E-03	7.41E-03	1.04E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 Instate Delivery Class 4	Diesel	722	6.09E-03	3.68E-01	5.35E-02	9.93E-03	1.93E-03	1.20E-02	4.76E-02	6.15E-02	1.84E-03	3.00E-03	1.66E-02	2.15E-02	1.05E+03	2.83E-04	1.65E-01	0.01%
T6 Instate Delivery Class 4	Electricity	767	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.38E-02	3.58E-02	0.00E+00	3.00E-03	8.32E-03	1.13E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 Instate Delivery Class 5	Diesel	765	6.12E-03	3.57E-01	5.30E-02	9.96E-03	1.92E-03	1.20E-02	4.76E-02	6.15E-02	1.83E-03	3.00E-03	1.66E-02	2.15E-02	1.05E+03	2.84E-04	1.66E-01	0.01%
T6 Instate Delivery Class 5	Electricity	815	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.38E-02	3.58E-02	0.00E+00	3.00E-03	8.32E-03	1.13E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 Instate Delivery Class 6	Diesel	2,156	6.11E-03	3.62E-01	5.32E-02	9.94E-03	1.92E-03	1.20E-02	4.76E-02	6.15E-02	1.84E-03	3.00E-03	1.66E-02	2.15E-02	1.05E+03	2.84E-04	1.65E-01	0.03%
T6 Instate Delivery Class 6	Electricity	2,292	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.38E-02	3.58E-02	0.00E+00	3.00E-03	8.32E-03	1.13E-02	0.00E+00	0.00E+00	0.00E+00	0.03%
T6 Instate Delivery Class 7	Diesel	1,328	8.41E-03	5.85E-01	6.91E-02	1.02E-02	2.50E-03	1.20E-02	4.76E-02	6.21E-02	2.39E-03	3.00E-03	1.66E-02	2.20E-02	1.08E+03	3.91E-04	1.70E-01	0.02%
T6 Instate Delivery Class 7	Electricity	775	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.38E-02	3.58E-02	0.00E+00	3.00E-03	8.32E-03	1.13E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 Instate Other Class 4	Diesel	4,949	5.49E-03	2.73E-01	4.24E-02	9.61E-03	3.13E-03	1.20E-02	4.49E-02	6.00E-02	3.00E-03	3.00E-03	1.57E-02	2.17E-02	1.02E+03	2.55E-04	1.60E-01	0.06%
T6 Instate Other Class 4	Electricity	5,586	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.07%
T6 Instate Other Class 5	Diesel	13,210	5.50E-03	2.70E-01	4.23E-02	9.62E-03	3.12E-03	1.20E-02	4.49E-02	6.00E-02	2.99E-03	3.00E-03	1.57E-02	2.17E-02	1.02E+03	2.55E-04	1.60E-01	0.16%
T6 Instate Other Class 5	Electricity	14,901	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.18%
T6 Instate Other Class 6	Diesel	6,898	5.53E-03	2.76E-01	4.24E-02	9.61E-03	3.15E-03	1.20E-02	4.49E-02	6.00E-02	3.01E-03	3.00E-03	1.57E-02	2.17E-02	1.02E+03	2.57E-04	1.60E-01	0.08%
T6 Instate Other Class 6	Electricity	7,762	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.09%
T6 Instate Other Class 7	Diesel	10,377	7.24E-03	4.57E-01	5.28E-02	9.69E-03	4.01E-03	1.20E-02	4.49E-02	6.09E-02	3.84E-03	3.00E-03	1.57E-02	2.25E-02	1.02E+03	3.36E-04	1.61E-01	0.13%
T6 Instate Other Class 7	Electricity	7,407	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.09%
T6 Instate Tractor Class 6	Diesel	183	5.41E-03	2.75E-01	4.18E-02	9.63E-03	3.11E-03	1.20E-02	4.49E-02	6.00E-02	2.97E-03	3.00E-03	1.57E-02	2.17E-02	1.02E+03	2.51E-04	1.60E-01	0.00%
T6 Instate Tractor Class 6	Electricity	215	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.00%
T6 Instate Tractor Class 7	Diesel	4,117	6.88E-03	4.78E-01	5.26E-02	8.79E-03	3.97E-03	1.20E-02	4.49E-02	6.08E-02	3.79E-03	3.00E-03	1.57E-02	2.25E-02	9.28E+02	3.20E-04	1.46E-01	0.05%

T6 Instate Tractor Class 7	Electricity	944	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.24E-02	3.44E-02	0.00E+00	3.00E-03	7.85E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 OOS Class 4	Diesel	68	5.22E-03	2.22E-01	2.68E-02	9.02E-03	5.55E-03	1.20E-02	4.23E-02	5.99E-02	5.31E-03	3.00E-03	1.48E-02	2.31E-02	9.53E+02	2.43E-04	1.50E-01	0.00%
T6 OOS Class 5	Diesel	93	5.24E-03	2.24E-01	2.68E-02	9.03E-03	5.57E-03	1.20E-02	4.23E-02	5.99E-02	5.33E-03	3.00E-03	1.48E-02	2.31E-02	9.53E+02	2.43E-04	1.50E-01	0.00%
T6 OOS Class 6	Diesel	244	5.20E-03	2.20E-01	2.67E-02	9.01E-03	5.53E-03	1.20E-02	4.23E-02	5.98E-02	5.29E-03	3.00E-03	1.48E-02	2.31E-02	9.51E+02	2.41E-04	1.50E-01	0.00%
T6 OOS Class 7	Diesel	1,773	5.61E-03	2.32E-01	2.88E-02	8.12E-03	5.86E-03	1.20E-02	4.23E-02	6.02E-02	5.61E-03	3.00E-03	1.48E-02	2.34E-02	8.57E+02	2.61E-04	1.35E-01	0.02%
T6 Public Class 4	Diesel	566	1.72E-02	7.48E-01	6.80E-02	1.04E-02	5.19E-03	1.20E-02	4.62E-02	6.34E-02	4.97E-03	3.00E-03	1.62E-02	2.41E-02	1.09E+03	8.00E-04	1.72E-01	0.01%
T6 Public Class 4	Electricity	467	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.31E-02	3.51E-02	0.00E+00	3.00E-03	8.08E-03	1.11E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 Public Class 5	Diesel	871	1.32E-02	5.07E-01	6.08E-02	1.04E-02	3.66E-03	1.20E-02	4.62E-02	6.18E-02	3.50E-03	3.00E-03	1.62E-02	2.27E-02	1.10E+03	6.13E-04	1.73E-01	0.01%
T6 Public Class 5	Electricity	714	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.31E-02	3.51E-02	0.00E+00	3.00E-03	8.08E-03	1.11E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 Public Class 6	Diesel	559	1.16E-02	5.37E-01	5.64E-02	1.04E-02	4.00E-03	1.20E-02	4.62E-02	6.22E-02	3.83E-03	3.00E-03	1.62E-02	2.30E-02	1.10E+03	5.41E-04	1.73E-01	0.01%
T6 Public Class 6	Electricity	458	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.31E-02	3.51E-02	0.00E+00	3.00E-03	8.08E-03	1.11E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 Public Class 7	Diesel	3,009	9.65E-03	4.22E-01	5.16E-02	1.02E-02	3.27E-03	1.20E-02	4.62E-02	6.14E-02	3.13E-03	3.00E-03	1.62E-02	2.23E-02	1.08E+03	4.48E-04	1.70E-01	0.04%
T6 Public Class 7	Electricity	1,962	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.31E-02	3.51E-02	0.00E+00	3.00E-03	8.08E-03	1.11E-02	0.00E+00	0.00E+00	0.00E+00	0.02%
T6 Utility Class 5	Diesel	665	5.10E-03	1.95E-01	3.56E-02	9.63E-03	2.32E-03	1.20E-02	4.55E-02	5.98E-02	2.22E-03	3.00E-03	1.59E-02	2.11E-02	1.02E+03	2.37E-04	1.60E-01	0.01%
T6 Utility Class 5	Electricity	939	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.27E-02	3.47E-02	0.00E+00	3.00E-03	7.96E-03	1.10E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T6 Utility Class 6	Diesel	126	5.11E-03	1.91E-01	3.56E-02	9.63E-03	2.30E-03	1.20E-02	4.55E-02	5.98E-02	2.20E-03	3.00E-03	1.59E-02	2.11E-02	1.02E+03	2.37E-04	1.60E-01	0.00%
T6 Utility Class 6	Electricity	177	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.27E-02	3.47E-02	0.00E+00	3.00E-03	7.96E-03	1.10E-02	0.00E+00	0.00E+00	0.00E+00	0.00%
T6 Utility Class 7	Diesel	172	5.06E-03	1.86E-01	3.53E-02	9.64E-03	2.29E-03	1.20E-02	4.55E-02	5.98E-02	2.19E-03	3.00E-03	1.59E-02	2.11E-02	1.02E+03	2.35E-04	1.60E-01	0.00%
T6 Utility Class 7	Electricity	250	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.27E-02	3.47E-02	0.00E+00	3.00E-03	7.96E-03	1.10E-02	0.00E+00	0.00E+00	0.00E+00	0.00%
T6TS	Gasoline	5,430	1.13E-02	7.43E-02	1.88E-01	1.53E-02	1.49E-03	1.20E-02	4.50E-02	5.85E-02	1.37E-03	3.00E-03	1.58E-02	2.01E-02	1.55E+03	3.03E-03	7.23E-03	0.07%
T6TS	Electricity	5,963	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-02	2.25E-02	3.45E-02	0.00E+00	3.00E-03	7.88E-03	1.09E-02	0.00E+00	0.00E+00	0.00E+00	0.07%
T7 CAIRP Class 8	Diesel	209,891	1.14E-02	1.21E+00	3.87E-02	1.21E-02	2.98E-02	3.60E-02	8.18E-02	1.48E-01	2.85E-02	9.00E-03	2.86E-02	6.62E-02	1.28E+03	5.32E-04	2.01E-01	2.54%
T7 CAIRP Class 8	Electricity	59,755	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.09E-02	7.69E-02	0.00E+00	9.00E-03	1.43E-02	2.33E-02	0.00E+00	0.00E+00	0.00E+00	0.72%
T7 NNOOS Class 8	Diesel	320,254	1.11E-02	1.34E+00	3.77E-02	1.16E-02	2.94E-02	3.60E-02	8.18E-02	1.47E-01	2.81E-02	9.00E-03	2.86E-02	6.58E-02	1.22E+03	5.17E-04	1.93E-01	3.88%
T7 NOOS Class 8	Diesel	116,447	1.15E-02	1.38E+00	3.89E-02	1.16E-02	3.11E-02	3.60E-02	8.18E-02	1.49E-01	2.98E-02	9.00E-03	2.86E-02	6.74E-02	1.22E+03	5.33E-04	1.93E-01	1.41%
T7 Other Port Class 8	Diesel	2,425	1.00E-02	1.24E+00	6.35E-02	1.30E-02	1.64E-02	3.60E-02	9.42E-02	1.47E-01	1.57E-02	9.00E-03	3.30E-02	5.77E-02	1.37E+03	4.66E-04	2.16E-01	0.03%
T7 Other Port Class 8	Electricity	613	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.71E-02	8.31E-02	0.00E+00	9.00E-03	1.65E-02	2.55E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T7 POAK Class 8	Diesel	4,421	1.02E-02	1.29E+00	6.48E-02	1.29E-02	1.71E-02	3.60E-02	9.42E-02	1.47E-01	1.64E-02	9.00E-03	3.30E-02	5.83E-02	1.37E+03	4.75E-04	2.15E-01	0.05%
T7 POAK Class 8	Electricity	1,011	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.71E-02	8.31E-02	0.00E+00	9.00E-03	1.65E-02	2.55E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T7 Public Class 8	Diesel	6,471	3.60E-02	2.25E+00	1.66E-01	1.55E-02	1.15E-02	3.60E-02	1.08E-01	1.55E-01	1.10E-02	9.00E-03	3.77E-02	5.77E-02	1.63E+03	1.67E-03	2.57E-01	0.08%
T7 Public Class 8	Electricity	4,070	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	5.43E-02	9.03E-02	0.00E+00	9.00E-03	1.90E-02	2.80E-02	0.00E+00	0.00E+00	0.00E+00	0.05%
T7 Single Concrete/Transit Mix Class 8	Diesel	765	8.63E-03	8.12E-01	4.37E-02	1.37E-02	1.37E-02	3.60E-02	8.86E-02	1.38E-01	1.31E-02	9.00E-03	3.10E-02	5.31E-02	1.45E+03	4.01E-04	2.28E-01	0.01%
T7 Single Concrete/Transit Mix Class 8	Electricity	1,028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.44E-02	8.04E-02	0.00E+00	9.00E-03	1.55E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T7 Single Concrete/Transit Mix Class 8	Natural Gas	19	1.52E-02	1.66E-01	4.05E+00	0.00E+00	2.25E-03	3.60E-02	8.86E-02	1.27E-01	2.07E-03	9.00E-03	3.10E-02	4.21E-02	1.12E+03	1.07E+00	2.29E-01	0.00%
T7 Single Dump Class 8	Diesel	4,237	1.08E-02	1.12E+00	5.66E-02	1.42E-02	1.76E-02	3.60E-02	8.71E-02	1.41E-01	1.69E-02	9.00E-03	3.05E-02	5.63E-02	1.50E+03	5.01E-04	2.36E-01	0.05%
T7 Single Dump Class 8	Electricity	3,664	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.44E-02	8.04E-02	0.00E+00	9.00E-03	1.55E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	0.04%
T7 Single Dump Class 8	Natural Gas	101	1.52E-02	2.24E-01	4.85E+00	0.00E+00	2.13E-03	3.60E-02	8.75E-02	1.26E-01	1.95E-03	9.00E-03	3.06E-02	4.16E-02	1.15E+03	1.07E+00	2.34E-01	0.00%
T7 Single Other Class 8	Diesel	16,998	9.87E-03	1.03E+00	5.14E-02	1.40E-02	1.67E-02	3.60E-02	8.72E-02	1.40E-01	1.60E-02	9.00E-03	3.05E-02	5.55E-02	1.48E+03	4.58E-04	2.33E-01	0.21%
T7 Single Other Class 8	Electricity	16,050	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.44E-02	8.04E-02	0.00E+00	9.00E-03	1.55E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	0.19%
T7 Single Other Class 8	Natural Gas	427	1.52E-02	1.96E-01	4.47E+00	0.00E+00	2.19E-03	3.60E-02	8.73E-02	1.25E-01	2.01E-03	9.00E-03	3.05E-02	4.16E-02	1.14E+03	1.07E+00	2.32E-01	0.01%
T7 SWCV Class 8	Diesel	3,174	2.63E-02	1.11E+00	5.91E-02	3.04E-02	1.73E-02	3.60E-02	2.10E-01	2.63E-01	1.66E-02	9.00E-03	7.35E-02	9.91E-02	3.21E+03	1.22E-03	5.06E-01	0.04%
T7 SWCV Class 8	Electricity	2,369	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	1.05E-01	1.41E-01	0.00E+00	9.00E-03	3.68E-02	4.58E-02	0.00E+00	0.00E+00	0.00E+00	0.03%
T7 SWCV Class 8	Natural Gas	540	2.58E-02	6.94E-01	1.45E+01	0.00E+00	9.90E-04	3.60E-02	2.10E-01	2.47E-01	9.11E-04	9.00E-03	7.35E-02	8.34E-02	1.40E+03	1.81E+00	2.85E-01	0.01%
T7 Tractor Class 8	Diesel	95,225	1.03E-02	1.20E+00	4.83E-02	1.21E-02	2.19E-02	3.60E-02	8.57E-02	1.44E-01	2.10E-02	9.00E-03	3.00E-02	6.00E-02	1.28E+03	4.78E-04	2.02E-01	1.15%
T7 Tractor Class 8	Electricity	18,318	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	4.33E-02	7.93E-02	0.00E+00	9.00E-03	1.52E-02	2.42E-02	0.00E+00	0.00E+00	0.00E+00	0.22%
T7 Tractor Class 8	Natural Gas	720	1.46E-02	1.74E-01	3.85E+00	0.00E+00	2.14E-03	3.60E-02	8.57E-02	1.24E-01	1.97E-03	9.00E-03	3.00E-02	4.10E-02	1.08E+03	1.02E+00	2.20E-01	0.01%
T7 Utility Class 8	Diesel	731	1.13E-02	1.11E+00	1.05E-01	1.47E-02	7.37E-03	3.60E-02	1.01E-01	1.44E-01	7.05E-03	9.00E-03	3.53E-02	5.13E-02	1.55E+03	5.27E-04	2.45E-01	0.01%
T7 Utility Class 8	Electricity	536	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-02	5.19E-02	8.79E-02	0.00E+00	9.00E-03	1.82E-02	2.72E-02	0.00E+00	0.00E+00	0.00E+00	0.01%
T7IS	Gasoline	19	4.47E-01	2.27E+00	3.04E+01	1.80E-02	1.55E-03	2.00E-02	9.64E-02	1.18E-01	1.42E-03	5.00E-03	3.37E-02	4.02E-02	1.82E+03	9.64E-02	1.04E-01	0.00%
T7IS	Electricity	19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-02	4.85E-02	6.85E-02	0.00E+00	5.00E-03	1.70E-02	2.20E-02	0.00E+00	0.00E+00	0.00E+00	0.00%
UBUS	Gasoline	2,106	3.45E-03	1.71E-02	5.74E-01	8.31E-03	1.29E-03	8.00E-03	9.10E-02	1.00E-01	1.19E-03	2.00E-03	3.19E-02	3.50E-02	8.41E+02	1.27E-03	2.82E-03	0.03%
UBUS	Electricity	5,058	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-02	5.50E-02	7.24E-02	0.00E+00	4.34E-03	1.93E-02	2.36E-02	0.00E+00	0.00E+00	0.00E+00	0.06%
		8,248,859															**100.00%**

Source: EMFAC2021 (v1.0.2)

Region Type: County
Region: Shasta
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for

		lbs/Mile														
Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2(Pavley+AACC)_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	Diesel	9.414E-05	2.795E-03	3.867E-04	2.172E-05	2.840E-05	2.646E-05	1.017E-04	1.566E-04	2.718E-05	6.614E-06	3.560E-05	6.939E-05	2.294E+00	4.372E-06	3.614E-04
LDA	Gasoline	6.204E-06	4.427E-05	1.089E-03	4.971E-06	1.074E-06	1.764E-05	1.451E-05	3.322E-05	9.877E-07	4.409E-06	5.079E-06	1.048E-05	5.029E-01	2.138E-06	7.187E-06
LDA	Diesel	1.130E-05	6.015E-05	3.137E-04	3.785E-06	3.386E-06	1.764E-05	1.458E-05	3.560E-05	3.239E-06	4.409E-06	5.104E-06	1.275E-05	3.995E-01	5.247E-07	6.293E-05
LDA	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.689E-06	2.733E-05	0.000E+00	4.409E-06	3.391E-06	7.800E-06	0.000E+00	0.000E+00	0.000E+00
LDA	Plug-in Hybri	2.427E-06	5.811E-06	4.066E-04	2.463E-06	4.409E-07	1.764E-05	8.554E-06	2.663E-05	4.056E-07	4.409E-06	2.994E-06	7.809E-06	2.490E-01	7.385E-07	9.833E-07
LDT1	Gasoline	7.180E-06	5.022E-05	1.182E-03	5.789E-06	1.226E-06	1.764E-05	1.746E-05	3.633E-05	1.127E-06	4.409E-06	6.113E-06	1.165E-05	5.857E-01	2.379E-06	7.624E-06
LDT1	Diesel	2.663E-05	6.412E-05	2.824E-04	6.956E-06	9.021E-06	1.764E-05	1.726E-05	4.392E-05	8.631E-06	4.409E-06	6.043E-06	1.908E-05	7.341E-01	1.237E-06	1.157E-04
LDT1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.691E-06	2.733E-05	0.000E+00	4.409E-06	3.393E-06	7.802E-06	0.000E+00	0.000E+00	0.000E+00
LDT1	Plug-in Hybri	2.418E-06	5.791E-06	4.053E-04	2.454E-06	4.233E-07	1.764E-05	8.560E-06	2.662E-05	3.902E-07	4.409E-06	2.996E-06	7.795E-06	2.482E-01	7.363E-07	9.788E-07
LDT2	Gasoline	8.746E-06	5.222E-05	1.284E-03	5.970E-06	1.127E-06	1.764E-05	1.728E-05	3.605E-05	1.036E-06	4.409E-06	6.049E-06	1.149E-05	6.039E-01	2.868E-06	7.769E-06
LDT2	Diesel	2.656E-05	6.231E-05	2.816E-04	5.163E-06	8.977E-06	1.764E-05	1.726E-05	4.388E-05	8.589E-06	4.409E-06	6.043E-06	1.904E-05	5.449E-01	1.235E-06	8.585E-05
LDT2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.691E-06	2.733E-05	0.000E+00	4.409E-06	3.393E-06	7.802E-06	0.000E+00	0.000E+00	0.000E+00
LDT2	Plug-in Hybri	2.425E-06	5.805E-06	4.062E-04	2.458E-06	4.365E-07	1.764E-05	8.558E-06	2.663E-05	4.012E-07	4.409E-06	2.996E-06	7.806E-06	2.488E-01	7.363E-07	9.766E-07
LHD1	Gasoline	1.072E-05	7.108E-05	1.296E-03	1.664E-05	2.815E-06	1.764E-05	1.720E-04	1.924E-04	2.588E-06	4.409E-06	6.019E-05	6.718E-05	1.683E+00	3.069E-06	5.368E-06
LHD1	Diesel	2.506E-04	1.324E-03	6.911E-04	1.280E-05	5.772E-05	2.646E-05	1.720E-04	2.561E-04	5.523E-05	6.614E-06	6.019E-05	1.220E-04	1.351E+00	1.164E-05	2.128E-04
LHD1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	8.598E-05	1.036E-04	0.000E+00	4.409E-06	3.009E-05	3.450E-05	0.000E+00	0.000E+00	0.000E+00
LHD2	Gasoline	8.393E-06	5.428E-05	1.332E-03	1.851E-05	2.743E-06	1.764E-05	2.006E-04	2.210E-04	2.522E-06	4.409E-06	7.022E-05	7.715E-05	1.872E+00	2.526E-06	5.161E-06
LHD2	Diesel	3.035E-04	1.697E-03	8.443E-04	1.509E-05	7.095E-05	2.646E-05	2.006E-04	2.980E-04	6.788E-05	6.614E-06	7.022E-05	1.447E-04	1.593E+00	1.410E-05	2.510E-04
LHD2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	1.003E-04	1.179E-04	0.000E+00	4.409E-06	3.511E-05	3.952E-05	0.000E+00	0.000E+00	0.000E+00
MCY	Gasoline	1.864E-03	1.114E-03	2.314E-02	4.059E-06	4.460E-06	8.818E-06	2.646E-05	3.973E-05	4.160E-06	2.205E-06	9.259E-06	1.562E-05	4.106E-01	3.028E-04	8.125E-05
MDV	Gasoline	9.965E-06	6.073E-05	1.353E-03	7.249E-06	1.153E-06	1.764E-05	1.754E-05	3.633E-05	1.060E-06	4.409E-06	6.140E-06	1.161E-05	7.333E-01	3.122E-06	8.236E-06
MDV	Diesel	1.104E-05	3.142E-05	3.267E-04	6.859E-06	2.910E-06	1.764E-05	1.773E-05	3.828E-05	2.784E-06	4.409E-06	6.206E-06	1.340E-05	7.239E-01	5.137E-07	1.141E-04
MDV	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	9.705E-06	2.734E-05	0.000E+00	4.409E-06	3.397E-06	7.806E-06	0.000E+00	0.000E+00	0.000E+00
MDV	Plug-in Hybri	2.427E-06	5.809E-06	4.064E-04	2.460E-06	4.409E-07	1.764E-05	8.567E-06	2.664E-05	4.056E-07	4.409E-06	2.998E-06	7.813E-06	2.489E-01	7.363E-07	9.744E-07
MH	Gasoline	2.525E-05	4.287E-04	3.559E-04	4.245E-05	3.188E-06	2.646E-05	9.931E-05	1.290E-04	2.932E-06	6.614E-06	3.476E-05	4.431E-05	4.293E+00	8.882E-06	3.981E-05
MH	Diesel	2.217E-04	6.539E-03	6.899E-04	2.272E-05	1.138E-04	3.527E-05	9.886E-05	2.479E-04	1.089E-04	8.818E-06	3.460E-05	1.523E-04	2.398E+00	1.030E-05	3.777E-04
Motor Coach	Diesel	2.321E-05	2.074E-03	7.915E-05	3.197E-05	5.216E-05	2.646E-05	1.796E-04	2.582E-04	4.991E-05	6.614E-06	6.287E-05	1.194E-04	3.376E+00	1.078E-06	5.319E-04
OBUS	Gasoline	7.543E-05	7.527E-04	1.529E-03	3.420E-05	2.747E-06	2.646E-05	9.896E-05	1.282E-04	2.524E-06	6.614E-06	3.463E-05	4.377E-05	3.460E+00	1.582E-05	4.062E-05
OBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.948E-05	7.593E-05	0.000E+00	6.614E-06	1.732E-05	2.393E-05	0.000E+00	0.000E+00	0.000E+00
PTO	Diesel	3.267E-05	5.686E-03	4.003E-04	3.651E-05	8.982E-06	0.000E+00	0.000E+00	8.982E-06	8.594E-06	0.000E+00	0.000E+00	8.594E-06	3.856E+00	1.517E-06	6.075E-04
PTO	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SBUS	Gasoline	1.773E-05	3.369E-04	4.399E-04	1.627E-05	2.676E-06	1.764E-05	9.902E-05	1.193E-04	2.460E-06	4.409E-06	3.466E-05	4.153E-05	1.646E+00	4.158E-06	3.021E-05
SBUS	Diesel	1.609E-05	8.035E-04	1.204E-04	2.165E-05	7.357E-06	2.646E-05	9.902E-05	1.328E-04	7.039E-06	6.614E-06	3.466E-05	4.831E-05	2.286E+00	7.474E-07	3.602E-04
SBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.491E-05	4.951E-05	7.442E-05	0.000E+00	6.228E-06	1.733E-05	2.356E-05	0.000E+00	0.000E+00	0.000E+00
SBUS	Natural Gas	6.907E-05	2.576E-04	1.278E-02	0.000E+00	8.100E-06	2.646E-05	9.902E-05	1.336E-04	7.447E-06	6.614E-06	3.466E-05	4.872E-05	2.295E+00	4.834E-03	4.679E-04
T6 CAIRP Class 4	Diesel	1.176E-05	3.915E-04	6.027E-05	2.120E-05	1.185E-05	2.646E-05	9.329E-05	1.316E-04	1.134E-05	6.614E-06	3.265E-05	5.060E-05	2.239E+00	5.467E-07	3.527E-04
T6 CAIRP Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.664E-05	7.310E-05	0.000E+00	6.614E-06	1.633E-05	2.294E-05	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 5	Diesel	1.178E-05	3.943E-04	6.037E-05	2.121E-05	1.188E-05	2.646E-05	9.329E-05	1.316E-04	1.136E-05	6.614E-06	3.265E-05	5.063E-05	2.240E+00	5.467E-07	3.528E-04
T6 CAIRP Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.664E-05	7.310E-05	0.000E+00	6.614E-06	1.633E-05	2.294E-05	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 6	Diesel	1.173E-05	3.937E-04	6.016E-05	2.118E-05	1.190E-05	2.646E-05	9.329E-05	1.316E-04	1.138E-05	6.614E-06	3.265E-05	5.065E-05	2.236E+00	5.445E-07	3.523E-04
T6 CAIRP Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.664E-05	7.310E-05	0.000E+00	6.614E-06	1.633E-05	2.294E-05	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 7	Diesel	1.265E-05	4.306E-04	6.486E-05	1.871E-05	1.261E-05	2.646E-05	9.329E-05	1.324E-04	1.207E-05	6.614E-06	3.265E-05	5.133E-05	1.975E+00	5.886E-07	3.112E-04
T6 CAIRP Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.664E-05	7.310E-05	0.000E+00	6.614E-06	1.633E-05	2.294E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Class 4	Diesel	1.342E-05	8.111E-04	1.181E-04	2.190E-05	4.246E-06	2.646E-05	1.049E-04	1.356E-04	4.061E-06	6.614E-06	3.670E-05	4.737E-05	2.312E+00	6.239E-07	3.643E-04
T6 Instate Delivery Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.243E-05	7.888E-05	0.000E+00	6.614E-06	1.835E-05	2.496E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Class 5	Diesel	1.349E-05	7.864E-04	1.169E-04	2.195E-05	4.224E-06	2.646E-05	1.049E-04	1.355E-04	4.041E-06	6.614E-06	3.670E-05	4.735E-05	2.318E+00	6.261E-07	3.652E-04
T6 Instate Delivery Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.243E-05	7.888E-05	0.000E+00	6.614E-06	1.835E-05	2.496E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Class 6	Diesel	1.348E-05	7.977E-04	1.172E-04	2.192E-05	4.239E-06	2.646E-05	1.049E-04	1.356E-04	4.056E-06	6.614E-06	3.670E-05	4.737E-05	2.315E+00	6.261E-07	3.647E-04
T6 Instate Delivery Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.243E-05	7.888E-05	0.000E+00	6.614E-06	1.835E-05	2.496E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Class 7	Diesel	1.855E-05	1.290E-03	1.523E-04	2.256E-05	5.509E-06	2.646E-05	1.049E-04	1.368E-04	5.269E-06	6.614E-06	3.670E-05	4.858E-05	2.382E+00	8.620E-07	3.754E-04
T6 Instate Delivery Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.243E-05	7.888E-05	0.000E+00	6.614E-06	1.835E-05	2.496E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Class 4	Diesel	1.211E-05	6.022E-04	9.341E-05	2.120E-05	6.900E-06	2.646E-05	9.891E-05	1.323E-04	6.603E-06	6.614E-06	3.462E-05	4.783E-05	2.238E+00	5.622E-07	3.527E-04
T6 Instate Other Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Class 5	Diesel	1.212E-05	5.960E-04	9.315E-05	2.121E-05	6.878E-06	2.646E-05	9.891E-05	1.322E-04	6.581E-06	6.614E-06	3.462E-05	4.781E-05	2.240E+00	5.622E-07	3.529E-04
T6 Instate Other Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Class 6	Diesel	1.219E-05	6.083E-04	9.348E-05	2.119E-05	6.933E-06	2.646E-05	9.891E-05	1.323E-04	6.634E-06	6.614E-06	3.462E-05	4.786E-05	2.238E+00	5.666E-07	3.526E-04
T6 Instate Other Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Class 7	Diesel	1.597E-05	1.009E-03	1.164E-04	2.136E-05	8.838E-06	2.646E-05	9.891E-05	1.342E-04	8.457E-06	6.614E-06	3.462E-05	4.969E-05	2.255E+00	7.407E-07	3.553E-04
T6 Instate Other Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Tractor Class 6	Diesel	1.193E-05	6.052E-04	9.206E-05	2.122E-05	6.845E-06	2.646E-05	9.891E-05	1.322E-04	6.550E-06	6.614E-06	3.462E-05	4.778E-05	2.241E+00	5.534E-07	3.530E-04
T6 Instate Tractor Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 Instate Tractor Class 7	Diesel	1.517E-05	1.054E-03	1.160E-04	1.938E-05	8.743E-06	2.646E-05	9.891E-05	1.341E-04	8.364E-06	6.614E-06	3.462E-05	4.959E-05	2.046E+00	7.055E-07	3.224E-04

T6 Instate Tractor Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.945E-05	7.591E-05	0.000E+00	6.614E-06	1.731E-05	2.392E-05	0.000E+00	0.000E+00	0.000E+00
T6 OOS Class 4	Diesel	1.151E-05	4.897E-04	5.898E-05	1.989E-05	1.224E-05	2.646E-05	9.329E-05	1.320E-04	1.171E-05	6.614E-06	3.265E-05	5.098E-05	2.101E+00	5.357E-07	3.309E-04
T6 OOS Class 5	Diesel	1.156E-05	4.945E-04	5.915E-05	1.991E-05	1.228E-05	2.646E-05	9.329E-05	1.320E-04	1.175E-05	6.614E-06	3.265E-05	5.101E-05	2.102E+00	5.357E-07	3.312E-04
T6 OOS Class 6	Diesel	1.146E-05	4.845E-04	5.876E-05	1.985E-05	1.220E-05	2.646E-05	9.329E-05	1.319E-04	1.167E-05	6.614E-06	3.265E-05	5.093E-05	2.097E+00	5.313E-07	3.303E-04
T6 OOS Class 7	Diesel	1.237E-05	5.124E-04	6.342E-05	1.789E-05	1.293E-05	2.646E-05	9.329E-05	1.327E-04	1.237E-05	6.614E-06	3.265E-05	5.163E-05	1.890E+00	5.754E-07	2.977E-04
T6 Public Class 4	Diesel	3.797E-05	1.648E-03	1.499E-04	2.284E-05	1.144E-05	2.646E-05	1.018E-04	1.397E-04	1.095E-05	6.614E-06	3.562E-05	5.319E-05	2.412E+00	1.764E-06	3.800E-04
T6 Public Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.089E-05	7.735E-05	0.000E+00	6.614E-06	1.781E-05	2.443E-05	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 5	Diesel	2.908E-05	1.119E-03	1.341E-04	2.297E-05	8.073E-06	2.646E-05	1.018E-04	1.363E-04	7.723E-06	6.614E-06	3.562E-05	4.996E-05	2.426E+00	1.351E-06	3.822E-04
T6 Public Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.089E-05	7.735E-05	0.000E+00	6.614E-06	1.781E-05	2.443E-05	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 6	Diesel	2.565E-05	1.184E-03	1.242E-04	2.292E-05	8.814E-06	2.646E-05	1.018E-04	1.371E-04	8.433E-06	6.614E-06	3.562E-05	5.067E-05	2.420E+00	1.193E-06	3.813E-04
T6 Public Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.089E-05	7.735E-05	0.000E+00	6.614E-06	1.781E-05	2.443E-05	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 7	Diesel	2.127E-05	9.304E-04	1.137E-04	2.253E-05	7.207E-06	2.646E-05	1.018E-04	1.354E-04	6.896E-06	6.614E-06	3.562E-05	4.913E-05	2.379E+00	9.877E-07	3.748E-04
T6 Public Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.089E-05	7.735E-05	0.000E+00	6.614E-06	1.781E-05	2.443E-05	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 5	Diesel	1.125E-05	4.300E-04	7.858E-05	2.124E-05	5.117E-06	2.646E-05	1.003E-04	1.319E-04	4.896E-06	6.614E-06	3.511E-05	4.662E-05	2.243E+00	5.225E-07	3.533E-04
T6 Utility Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.015E-05	7.661E-05	0.000E+00	6.614E-06	1.755E-05	2.417E-05	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 6	Diesel	1.125E-05	4.204E-04	7.859E-05	2.124E-05	5.079E-06	2.646E-05	1.003E-04	1.318E-04	4.859E-06	6.614E-06	3.511E-05	4.658E-05	2.243E+00	5.225E-07	3.534E-04
T6 Utility Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.015E-05	7.661E-05	0.000E+00	6.614E-06	1.755E-05	2.417E-05	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 7	Diesel	1.114E-05	4.097E-04	7.782E-05	2.125E-05	5.051E-06	2.646E-05	1.003E-04	1.318E-04	4.832E-06	6.614E-06	3.511E-05	4.655E-05	2.244E+00	5.181E-07	3.536E-04
T6 Utility Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	5.015E-05	7.661E-05	0.000E+00	6.614E-06	1.755E-05	2.417E-05	0.000E+00	0.000E+00	0.000E+00
T6TS	Gasoline	2.501E-05	1.639E-04	4.145E-04	3.378E-05	3.283E-06	2.646E-05	9.931E-05	1.291E-04	3.018E-06	6.614E-06	3.476E-05	4.439E-05	3.417E+00	6.680E-06	1.594E-05
T6TS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.646E-05	4.966E-05	7.611E-05	0.000E+00	6.614E-06	1.738E-05	2.399E-05	0.000E+00	0.000E+00	0.000E+00
T7 CAIRP Class 8	Diesel	2.524E-05	2.678E-03	8.540E-05	2.669E-05	6.570E-05	7.937E-05	1.804E-04	3.255E-04	6.286E-05	1.984E-05	6.315E-05	1.458E-04	2.818E+00	1.173E-06	4.440E-04
T7 CAIRP Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.028E-05	1.696E-04	0.000E+00	1.984E-05	3.160E-05	5.144E-05	0.000E+00	0.000E+00	0.000E+00
T7 NNOOS Class 8	Diesel	2.454E-05	2.954E-03	8.309E-05	2.556E-05	6.484E-05	7.937E-05	1.804E-04	3.246E-04	6.203E-05	1.984E-05	6.314E-05	1.450E-04	2.699E+00	1.140E-06	4.253E-04
T7 NOOS Class 8	Diesel	2.532E-05	3.039E-03	8.566E-05	2.554E-05	6.865E-05	7.937E-05	1.804E-04	3.285E-04	6.568E-05	1.984E-05	6.315E-05	1.487E-04	2.698E+00	1.175E-06	4.250E-04
T7 Other Port Class 8	Diesel	2.212E-05	2.740E-03	1.400E-04	2.863E-05	3.621E-05	7.937E-05	2.076E-04	3.232E-04	3.464E-05	1.984E-05	7.265E-05	1.271E-04	3.023E+00	1.027E-06	4.764E-04
T7 Other Port Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.038E-04	1.832E-04	0.000E+00	1.984E-05	3.633E-05	5.617E-05	0.000E+00	0.000E+00	0.000E+00
T7 POAK Class 8	Diesel	2.256E-05	2.849E-03	1.428E-04	2.854E-05	3.778E-05	7.937E-05	2.076E-04	3.247E-04	3.614E-05	1.984E-05	7.265E-05	1.286E-04	3.013E+00	1.047E-06	4.748E-04
T7 POAK Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.038E-04	1.832E-04	0.000E+00	1.984E-05	3.633E-05	5.617E-05	0.000E+00	0.000E+00	0.000E+00
T7 Public Class 8	Diesel	7.937E-05	4.962E-03	3.667E-04	3.407E-05	2.536E-05	7.937E-05	2.374E-04	3.421E-04	2.426E-05	1.984E-05	8.308E-05	1.272E-04	3.598E+00	3.686E-06	5.669E-04
T7 Public Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.197E-04	1.990E-04	0.000E+00	1.984E-05	4.189E-05	6.173E-05	0.000E+00	0.000E+00	0.000E+00
T7 Single Concrete/Transit Mix Class 8	Diesel	1.902E-05	1.790E-03	9.633E-05	3.023E-05	3.022E-05	7.937E-05	1.954E-04	3.050E-04	2.891E-05	1.984E-05	6.839E-05	1.171E-04	3.193E+00	8.840E-07	5.030E-04
T7 Single Concrete/Transit Mix Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.786E-05	1.772E-04	0.000E+00	1.984E-05	3.425E-05	5.409E-05	0.000E+00	0.000E+00	0.000E+00
T7 Single Concrete/Transit Mix Class 8	Natural Gas	3.361E-05	3.655E-04	8.928E-03	0.000E+00	4.969E-06	7.937E-05	1.954E-04	2.797E-04	4.570E-06	1.984E-05	6.839E-05	9.280E-05	2.480E+00	2.352E-03	5.055E-04
T7 Single Dump Class 8	Diesel	2.379E-05	2.463E-03	1.248E-04	3.124E-05	3.884E-05	7.937E-05	1.920E-04	3.102E-04	3.716E-05	1.984E-05	6.721E-05	1.242E-04	3.299E+00	1.105E-06	5.198E-04
T7 Single Dump Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.784E-05	1.772E-04	0.000E+00	1.984E-05	3.425E-05	5.409E-05	0.000E+00	0.000E+00	0.000E+00
T7 Single Dump Class 8	Natural Gas	3.355E-05	4.931E-04	1.069E-02	0.000E+00	4.685E-06	7.937E-05	1.929E-04	2.770E-04	4.308E-06	1.984E-05	6.752E-05	9.167E-05	2.535E+00	2.348E-03	5.167E-04
T7 Single Other Class 8	Diesel	2.176E-05	2.279E-03	1.133E-04	3.084E-05	3.691E-05	7.937E-05	1.923E-04	3.085E-04	3.531E-05	1.984E-05	6.730E-05	1.225E-04	3.257E+00	1.010E-06	5.132E-04
T7 Single Other Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.783E-05	1.772E-04	0.000E+00	1.984E-05	3.424E-05	5.408E-05	0.000E+00	0.000E+00	0.000E+00
T7 Single Other Class 8	Natural Gas	3.358E-05	4.327E-04	9.854E-03	0.000E+00	4.819E-06	7.937E-05	1.924E-04	2.766E-04	4.431E-06	1.984E-05	6.733E-05	9.160E-05	2.511E+00	2.350E-03	5.119E-04
T7 SWCV Class 8	Diesel	5.801E-05	2.451E-03	1.302E-04	6.709E-05	3.823E-05	7.937E-05	4.630E-04	5.806E-04	3.657E-05	1.984E-05	1.620E-04	2.185E-04	7.085E+00	2.694E-06	1.116E-03
T7 SWCV Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	2.315E-04	3.108E-04	0.000E+00	1.984E-05	8.102E-05	1.009E-04	0.000E+00	0.000E+00	0.000E+00
T7 SWCV Class 8	Natural Gas	5.687E-05	1.530E-03	3.203E-02	0.000E+00	2.183E-06	7.937E-05	4.630E-04	5.445E-04	2.008E-06	1.984E-05	1.620E-04	1.839E-04	3.087E+00	3.980E-03	6.294E-04
T7 Tractor Class 8	Diesel	2.267E-05	2.637E-03	1.064E-04	2.670E-05	4.835E-05	7.937E-05	1.890E-04	3.167E-04	4.626E-05	1.984E-05	6.615E-05	1.322E-04	2.820E+00	1.054E-06	4.443E-04
T7 Tractor Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	9.543E-05	1.748E-04	0.000E+00	1.984E-05	3.340E-05	5.324E-05	0.000E+00	0.000E+00	0.000E+00
T7 Tractor Class 8	Natural Gas	3.214E-05	3.833E-04	8.479E-03	0.000E+00	4.711E-06	7.937E-05	1.890E-04	2.731E-04	4.332E-06	1.984E-05	6.616E-05	9.033E-05	2.376E+00	2.249E-03	4.843E-04
T7 Utility Class 8	Diesel	2.502E-05	2.438E-03	2.304E-04	3.243E-05	1.624E-05	7.937E-05	2.223E-04	3.179E-04	1.554E-05	1.984E-05	7.780E-05	1.132E-04	3.425E+00	1.162E-06	5.396E-04
T7 Utility Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.937E-05	1.145E-04	1.939E-04	0.000E+00	1.984E-05	4.007E-05	5.991E-05	0.000E+00	0.000E+00	0.000E+00
T7IS	Gasoline	9.859E-04	5.008E-03	6.698E-02	3.962E-05	3.406E-06	4.409E-05	2.126E-04	2.601E-04	3.133E-06	1.102E-05	7.439E-05	8.855E-05	4.008E+00	2.126E-04	2.298E-04
T7IS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.409E-05	1.068E-04	1.509E-04	0.000E+00	1.102E-05	3.739E-05	4.841E-05	0.000E+00	0.000E+00	0.000E+00
UBUS	Gasoline	7.595E-06	3.779E-05	1.265E-03	1.833E-05	2.846E-06	1.764E-05	2.006E-04	2.211E-04	2.617E-06	4.409E-06	7.022E-05	7.724E-05	1.854E+00	2.798E-06	6.213E-06
UBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.828E-05	1.213E-04	1.595E-04	0.000E+00	9.570E-06	4.244E-05	5.201E-05	0.000E+00	0.000E+00	0.000E+00

Source: EMFAC2021 (v1.0.2)

Region Type: County
Region: Shasta
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for

1.0E-06 MTons/Mile

Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2(Pavley+AACC)_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	Diesel	4.270E-08	1.268E-06	1.754E-07	9.853E-09	1.288E-08	1.200E-08	4.614E-08	7.102E-08	1.233E-08	3.000E-09	1.615E-08	3.148E-08	1.041E-03	1.983E-09	1.639E-07
LDA	Gasoline	2.814E-09	2.008E-08	4.939E-07	2.255E-09	4.870E-10	8.000E-09	6.583E-09	1.507E-08	4.480E-10	2.000E-09	2.304E-09	4.752E-09	2.281E-04	9.700E-10	3.260E-09
LDA	Diesel	5.124E-09	2.728E-08	1.423E-07	1.717E-09	1.536E-09	8.000E-09	6.614E-09	1.615E-08	1.469E-09	2.000E-09	2.315E-09	5.784E-09	1.812E-04	2.380E-10	2.855E-08
LDA	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.395E-09	1.240E-08	0.000E+00	2.000E-09	1.538E-09	3.538E-09	0.000E+00	0.000E+00	0.000E+00
LDA	Plug-in Hybri	1.101E-09	2.636E-09	1.844E-07	1.117E-09	2.000E-10	8.000E-09	3.880E-09	1.208E-08	1.840E-10	2.000E-09	1.358E-09	3.542E-09	1.129E-04	3.350E-10	4.460E-10
LDT1	Gasoline	3.257E-09	2.278E-08	5.363E-07	2.626E-09	5.560E-10	8.000E-09	7.922E-09	1.648E-08	5.110E-10	2.000E-09	2.773E-09	5.284E-09	2.657E-04	1.079E-09	3.458E-09
LDT1	Diesel	1.208E-08	2.908E-08	1.281E-07	3.155E-09	4.092E-09	8.000E-09	7.830E-09	1.992E-08	3.915E-09	2.000E-09	2.741E-09	8.656E-09	3.330E-04	5.610E-10	5.246E-08
LDT1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.396E-09	1.240E-08	0.000E+00	2.000E-09	1.539E-09	3.539E-09	0.000E+00	0.000E+00	0.000E+00
LDT1	Plug-in Hybri	1.097E-09	2.627E-09	1.838E-07	1.113E-09	1.920E-10	8.000E-09	3.883E-09	1.208E-08	1.770E-10	2.000E-09	1.359E-09	3.536E-09	1.126E-04	3.340E-10	4.440E-10
LDT2	Gasoline	3.967E-09	2.369E-08	5.825E-07	2.708E-09	5.110E-10	8.000E-09	7.839E-09	1.635E-08	4.700E-10	2.000E-09	2.744E-09	5.214E-09	2.739E-04	1.301E-09	3.524E-09
LDT2	Diesel	1.205E-08	2.827E-08	1.277E-07	2.342E-09	4.072E-09	8.000E-09	7.831E-09	1.990E-08	3.896E-09	2.000E-09	2.741E-09	8.637E-09	2.472E-04	5.600E-10	3.894E-08
LDT2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.396E-09	1.240E-08	0.000E+00	2.000E-09	1.539E-09	3.539E-09	0.000E+00	0.000E+00	0.000E+00
LDT2	Plug-in Hybri	1.100E-09	2.633E-09	1.842E-07	1.115E-09	1.980E-10	8.000E-09	3.882E-09	1.208E-08	1.820E-10	2.000E-09	1.359E-09	3.541E-09	1.128E-04	3.340E-10	4.430E-10
LHD1	Gasoline	4.864E-09	3.224E-08	5.876E-07	7.548E-09	1.277E-09	8.000E-09	7.800E-08	8.728E-08	1.174E-09	2.000E-09	2.730E-08	3.047E-08	7.635E-04	1.392E-09	2.435E-09
LHD1	Diesel	1.137E-07	6.005E-07	3.135E-07	5.805E-09	2.618E-08	1.200E-08	7.800E-08	1.162E-07	2.505E-08	3.000E-09	2.730E-08	5.535E-08	6.126E-04	5.279E-09	9.652E-08
LHD1	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	3.900E-08	4.700E-08	0.000E+00	2.000E-09	1.365E-08	1.565E-08	0.000E+00	0.000E+00	0.000E+00
LHD2	Gasoline	3.807E-09	2.462E-08	6.042E-07	8.396E-09	1.244E-09	8.000E-09	9.100E-08	1.002E-07	1.144E-09	2.000E-09	3.185E-08	3.499E-08	8.493E-04	1.146E-09	2.341E-09
LHD2	Diesel	1.377E-07	7.698E-07	3.830E-07	6.847E-09	3.218E-08	1.200E-08	9.100E-08	1.352E-07	3.079E-08	3.000E-09	3.185E-08	6.564E-08	7.226E-04	6.394E-09	1.138E-07
LHD2	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.550E-08	5.350E-08	0.000E+00	2.000E-09	1.593E-08	1.793E-08	0.000E+00	0.000E+00	0.000E+00
MCY	Gasoline	8.453E-07	5.054E-07	1.050E-05	1.841E-09	2.023E-09	4.000E-09	1.200E-08	1.802E-08	1.887E-09	1.000E-09	4.200E-09	7.087E-09	1.862E-04	1.373E-07	3.685E-08
MDV	Gasoline	4.520E-09	2.755E-08	6.137E-07	3.288E-09	5.230E-10	8.000E-09	7.958E-09	1.648E-08	4.810E-10	2.000E-09	2.785E-09	5.266E-09	3.326E-04	1.416E-09	3.736E-09
MDV	Diesel	5.006E-09	1.425E-08	1.482E-07	3.111E-09	1.320E-09	8.000E-09	8.043E-09	1.736E-08	1.263E-09	2.000E-09	2.815E-09	6.078E-09	3.284E-04	2.330E-10	5.173E-08
MDV	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	4.402E-09	1.240E-08	0.000E+00	2.000E-09	1.541E-09	3.541E-09	0.000E+00	0.000E+00	0.000E+00
MDV	Plug-in Hybri	1.101E-09	2.635E-09	1.843E-07	1.116E-09	2.000E-10	8.000E-09	3.886E-09	1.209E-08	1.840E-10	2.000E-09	1.360E-09	3.544E-09	1.129E-04	3.340E-10	4.420E-10
MH	Gasoline	1.145E-08	1.944E-07	1.614E-07	1.925E-08	1.446E-09	1.200E-08	4.505E-08	5.849E-08	1.330E-09	3.000E-09	1.577E-08	2.010E-08	1.947E-03	4.029E-09	1.806E-08
MH	Diesel	1.005E-07	2.966E-06	3.130E-07	1.031E-08	5.163E-08	1.600E-08	4.484E-08	1.125E-07	4.939E-08	4.000E-09	1.570E-08	6.909E-08	1.088E-03	4.670E-09	1.713E-07
Motor Coach	Diesel	1.053E-08	9.406E-07	3.590E-08	1.450E-08	2.366E-08	1.200E-08	8.147E-08	1.171E-07	2.264E-08	3.000E-09	2.852E-08	5.415E-08	1.531E-03	4.890E-10	2.413E-07
OBUS	Gasoline	3.421E-08	3.414E-07	6.937E-07	1.551E-08	1.246E-09	1.200E-08	4.489E-08	5.813E-08	1.145E-09	3.000E-09	1.571E-08	1.986E-08	1.569E-03	7.176E-09	1.843E-08
OBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.244E-08	3.444E-08	0.000E+00	3.000E-09	7.855E-09	1.086E-08	0.000E+00	0.000E+00	0.000E+00
PTO	Diesel	1.482E-08	2.579E-06	1.816E-07	1.656E-08	4.074E-09	0.000E+00	0.000E+00	4.074E-09	3.898E-09	0.000E+00	0.000E+00	3.898E-09	1.749E-03	6.880E-10	2.756E-07
PTO	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SBUS	Gasoline	8.041E-09	1.528E-07	1.996E-07	7.380E-09	1.214E-09	8.000E-09	4.492E-08	5.413E-08	1.116E-09	2.000E-09	1.572E-08	1.884E-08	7.466E-04	1.886E-09	1.370E-08
SBUS	Diesel	7.299E-09	3.645E-07	5.460E-08	9.819E-09	3.337E-09	1.200E-08	4.492E-08	6.025E-08	3.193E-09	3.000E-09	1.572E-08	2.191E-08	1.037E-03	3.390E-10	1.634E-07
SBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.130E-08	2.246E-08	3.376E-08	0.000E+00	2.825E-09	7.860E-09	1.069E-08	0.000E+00	0.000E+00	0.000E+00
SBUS	Natural Gas	3.133E-08	1.168E-07	5.795E-06	0.000E+00	3.674E-09	1.200E-08	4.492E-08	6.059E-08	3.378E-09	3.000E-09	1.572E-08	2.210E-08	1.041E-03	2.193E-06	2.122E-07
T6 CAIRP Class 4	Diesel	5.334E-09	1.776E-07	2.734E-08	9.616E-09	5.377E-09	1.200E-08	4.231E-08	5.969E-08	5.144E-09	3.000E-09	1.481E-08	2.295E-08	1.015E-03	2.480E-10	1.600E-07
T6 CAIRP Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.116E-08	3.316E-08	0.000E+00	3.000E-09	7.405E-09	1.041E-08	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 5	Diesel	5.345E-09	1.788E-07	2.738E-08	9.620E-09	5.387E-09	1.200E-08	4.231E-08	5.970E-08	5.154E-09	3.000E-09	1.481E-08	2.296E-08	1.016E-03	2.480E-10	1.600E-07
T6 CAIRP Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.116E-08	3.316E-08	0.000E+00	3.000E-09	7.405E-09	1.041E-08	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 6	Diesel	5.322E-09	1.786E-07	2.729E-08	9.606E-09	5.398E-09	1.200E-08	4.231E-08	5.971E-08	5.164E-09	3.000E-09	1.481E-08	2.297E-08	1.014E-03	2.470E-10	1.598E-07
T6 CAIRP Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.116E-08	3.316E-08	0.000E+00	3.000E-09	7.405E-09	1.041E-08	0.000E+00	0.000E+00	0.000E+00
T6 CAIRP Class 7	Diesel	5.738E-09	1.953E-07	2.942E-08	8.485E-09	5.722E-09	1.200E-08	4.231E-08	6.004E-08	5.474E-09	3.000E-09	1.481E-08	2.328E-08	8.960E-04	2.670E-10	1.412E-07
T6 CAIRP Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.116E-08	3.316E-08	0.000E+00	3.000E-09	7.405E-09	1.041E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Class 4	Diesel	6.087E-09	3.679E-07	5.355E-08	9.933E-09	1.926E-09	1.200E-08	4.756E-08	6.149E-08	1.842E-09	3.000E-09	1.665E-08	2.149E-08	1.049E-03	2.830E-10	1.653E-07
T6 Instate Delivery Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.378E-08	3.578E-08	0.000E+00	3.000E-09	8.324E-09	1.132E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Class 5	Diesel	6.118E-09	3.567E-07	5.305E-08	9.958E-09	1.916E-09	1.200E-08	4.756E-08	6.148E-08	1.833E-09	3.000E-09	1.665E-08	2.148E-08	1.052E-03	2.840E-10	1.657E-07
T6 Instate Delivery Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.378E-08	3.578E-08	0.000E+00	3.000E-09	8.324E-09	1.132E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Class 6	Diesel	6.114E-09	3.618E-07	5.318E-08	9.941E-09	1.923E-09	1.200E-08	4.756E-08	6.149E-08	1.840E-09	3.000E-09	1.665E-08	2.149E-08	1.050E-03	2.840E-10	1.654E-07
T6 Instate Delivery Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.378E-08	3.578E-08	0.000E+00	3.000E-09	8.324E-09	1.132E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Delivery Class 7	Diesel	8.412E-09	5.850E-07	6.906E-08	1.023E-08	2.499E-09	1.200E-08	4.756E-08	6.206E-08	2.390E-09	3.000E-09	1.665E-08	2.204E-08	1.081E-03	3.910E-10	1.703E-07
T6 Instate Delivery Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.378E-08	3.578E-08	0.000E+00	3.000E-09	8.324E-09	1.132E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Class 4	Diesel	5.494E-09	2.732E-07	4.237E-08	9.614E-09	3.130E-09	1.200E-08	4.486E-08	5.999E-08	2.995E-09	3.000E-09	1.570E-08	2.170E-08	1.015E-03	2.550E-10	1.600E-07
T6 Instate Other Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Class 5	Diesel	5.499E-09	2.703E-07	4.225E-08	9.620E-09	3.120E-09	1.200E-08	4.486E-08	5.998E-08	2.985E-09	3.000E-09	1.570E-08	2.169E-08	1.016E-03	2.550E-10	1.601E-07
T6 Instate Other Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Class 6	Diesel	5.528E-09	2.759E-07	4.240E-08	9.613E-09	3.145E-09	1.200E-08	4.486E-08	6.001E-08	3.009E-09	3.000E-09	1.570E-08	2.171E-08	1.015E-03	2.570E-10	1.599E-07
T6 Instate Other Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Other Class 7	Diesel	7.243E-09	4.575E-07	5.281E-08	9.687E-09	4.009E-09	1.200E-08	4.486E-08	6.087E-08	3.836E-09	3.000E-09	1.570E-08	2.254E-08	1.023E-03	3.360E-10	1.612E-07
T6 Instate Other Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Tractor Class 6	Diesel	5.410E-09	2.745E-07	4.176E-08	9.625E-09	3.105E-09	1.200E-08	4.486E-08	5.997E-08	2.971E-09	3.000E-09	1.570E-08	2.167E-08	1.016E-03	2.510E-10	1.601E-07
T6 Instate Tractor Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 Instate Tractor Class 7	Diesel	6.881E-09	4.782E-07	5.263E-08	8.789E-09	3.966E-09	1.200E-08	4.486E-08	6.083E-08	3.794E-09	3.000E-09	1.570E-08	2.250E-08	9.282E-04	3.200E-10	1.462E-07

T6 Instate Tractor Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.243E-08	3.443E-08	0.000E+00	3.000E-09	7.851E-09	1.085E-08	0.000E+00	0.000E+00	0.000E+00
T6 OOS Class 4	Diesel	5.223E-09	2.221E-07	2.675E-08	9.022E-09	5.553E-09	1.200E-08	4.231E-08	5.987E-08	5.313E-09	3.000E-09	1.481E-08	2.312E-08	9.528E-04	2.430E-10	1.501E-07
T6 OOS Class 5	Diesel	5.242E-09	2.243E-07	2.683E-08	9.029E-09	5.572E-09	1.200E-08	4.231E-08	5.989E-08	5.330E-09	3.000E-09	1.481E-08	2.314E-08	9.535E-04	2.430E-10	1.502E-07
T6 OOS Class 6	Diesel	5.199E-09	2.198E-07	2.665E-08	9.005E-09	5.532E-09	1.200E-08	4.231E-08	5.985E-08	5.292E-09	3.000E-09	1.481E-08	2.310E-08	9.510E-04	2.410E-10	1.498E-07
T6 OOS Class 7	Diesel	5.611E-09	2.324E-07	2.877E-08	8.116E-09	5.863E-09	1.200E-08	4.231E-08	6.018E-08	5.609E-09	3.000E-09	1.481E-08	2.342E-08	8.571E-04	2.610E-10	1.350E-07
T6 Public Class 4	Diesel	1.722E-08	7.475E-07	6.798E-08	1.036E-08	5.190E-09	1.200E-08	4.617E-08	6.336E-08	4.966E-09	3.000E-09	1.616E-08	2.413E-08	1.094E-03	8.000E-10	1.724E-07
T6 Public Class 4	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.309E-08	3.509E-08	0.000E+00	3.000E-09	8.080E-09	1.108E-08	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 5	Diesel	1.319E-08	5.074E-07	6.084E-08	1.042E-08	3.662E-09	1.200E-08	4.617E-08	6.183E-08	3.503E-09	3.000E-09	1.616E-08	2.266E-08	1.100E-03	6.130E-10	1.734E-07
T6 Public Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.309E-08	3.509E-08	0.000E+00	3.000E-09	8.080E-09	1.108E-08	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 6	Diesel	1.164E-08	5.373E-07	5.636E-08	1.040E-08	3.998E-09	1.200E-08	4.617E-08	6.217E-08	3.825E-09	3.000E-09	1.616E-08	2.298E-08	1.098E-03	5.410E-10	1.730E-07
T6 Public Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.309E-08	3.509E-08	0.000E+00	3.000E-09	8.080E-09	1.108E-08	0.000E+00	0.000E+00	0.000E+00
T6 Public Class 7	Diesel	9.647E-09	4.220E-07	5.157E-08	1.022E-08	3.269E-09	1.200E-08	4.617E-08	6.144E-08	3.128E-09	3.000E-09	1.616E-08	2.229E-08	1.079E-03	4.480E-10	1.700E-07
T6 Public Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.309E-08	3.509E-08	0.000E+00	3.000E-09	8.080E-09	1.108E-08	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 5	Diesel	5.104E-09	1.950E-07	3.564E-08	9.633E-09	2.321E-09	1.200E-08	4.550E-08	5.982E-08	2.221E-09	3.000E-09	1.592E-08	2.115E-08	1.017E-03	2.370E-10	1.603E-07
T6 Utility Class 5	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.275E-08	3.475E-08	0.000E+00	3.000E-09	7.962E-09	1.096E-08	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 6	Diesel	5.105E-09	1.907E-07	3.565E-08	9.634E-09	2.304E-09	1.200E-08	4.550E-08	5.980E-08	2.204E-09	3.000E-09	1.592E-08	2.113E-08	1.017E-03	2.370E-10	1.603E-07
T6 Utility Class 6	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.275E-08	3.475E-08	0.000E+00	3.000E-09	7.962E-09	1.096E-08	0.000E+00	0.000E+00	0.000E+00
T6 Utility Class 7	Diesel	5.055E-09	1.858E-07	3.530E-08	9.640E-09	2.291E-09	1.200E-08	4.550E-08	5.979E-08	2.192E-09	3.000E-09	1.592E-08	2.112E-08	1.018E-03	2.350E-10	1.604E-07
T6 Utility Class 7	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.275E-08	3.475E-08	0.000E+00	3.000E-09	7.962E-09	1.096E-08	0.000E+00	0.000E+00	0.000E+00
T6TS	Gasoline	1.135E-08	7.433E-08	1.880E-07	1.532E-08	1.489E-09	1.200E-08	4.505E-08	5.854E-08	1.369E-09	3.000E-09	1.577E-08	2.014E-08	1.550E-03	3.030E-09	7.229E-09
T6TS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.200E-08	2.252E-08	3.452E-08	0.000E+00	3.000E-09	7.883E-09	1.088E-08	0.000E+00	0.000E+00	0.000E+00
T7 CAIRP Class 8	Diesel	1.145E-08	1.215E-06	3.874E-08	1.211E-08	2.980E-08	3.600E-08	8.184E-08	1.476E-07	2.851E-08	9.000E-09	2.864E-08	6.616E-08	1.278E-03	5.320E-10	2.014E-07
T7 CAIRP Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.095E-08	7.695E-08	0.000E+00	9.000E-09	1.433E-08	2.333E-08	0.000E+00	0.000E+00	0.000E+00
T7 NNOOS Class 8	Diesel	1.113E-08	1.340E-06	3.769E-08	1.159E-08	2.941E-08	3.600E-08	8.182E-08	1.472E-07	2.814E-08	9.000E-09	2.864E-08	6.578E-08	1.224E-03	5.170E-10	1.929E-07
T7 NOOS Class 8	Diesel	1.149E-08	1.379E-06	3.886E-08	1.159E-08	3.114E-08	3.600E-08	8.184E-08	1.490E-07	2.979E-08	9.000E-09	2.865E-08	6.744E-08	1.224E-03	5.330E-10	1.928E-07
T7 Other Port Class 8	Diesel	1.003E-08	1.243E-06	6.348E-08	1.299E-08	1.642E-08	3.600E-08	9.416E-08	1.466E-07	1.571E-08	9.000E-09	3.296E-08	5.767E-08	1.371E-03	4.660E-10	2.161E-07
T7 Other Port Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.708E-08	8.308E-08	0.000E+00	9.000E-09	1.648E-08	2.548E-08	0.000E+00	0.000E+00	0.000E+00
T7 POAK Class 8	Diesel	1.024E-08	1.292E-06	6.476E-08	1.294E-08	1.714E-08	3.600E-08	9.416E-08	1.473E-07	1.639E-08	9.000E-09	3.296E-08	5.835E-08	1.367E-03	4.750E-10	2.154E-07
T7 POAK Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.708E-08	8.308E-08	0.000E+00	9.000E-09	1.648E-08	2.548E-08	0.000E+00	0.000E+00	0.000E+00
T7 Public Class 8	Diesel	3.600E-08	2.251E-06	1.663E-07	1.545E-08	1.150E-08	3.600E-08	1.077E-07	1.552E-07	1.100E-08	9.000E-09	3.768E-08	5.769E-08	1.632E-03	1.672E-09	2.571E-07
T7 Public Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	5.429E-08	9.029E-08	0.000E+00	9.000E-09	1.900E-08	2.800E-08	0.000E+00	0.000E+00	0.000E+00
T7 Single Concrete/Transit Mix Class 8	Diesel	8.629E-09	8.120E-07	4.369E-08	1.371E-08	1.371E-08	3.600E-08	8.863E-08	1.383E-07	1.311E-08	9.000E-09	3.102E-08	5.313E-08	1.448E-03	4.010E-10	2.282E-07
T7 Single Concrete/Transit Mix Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.439E-08	8.039E-08	0.000E+00	9.000E-09	1.554E-08	2.454E-08	0.000E+00	0.000E+00	0.000E+00
T7 Single Concrete/Transit Mix Class 8	Natural Gas	1.525E-08	1.658E-07	4.050E-06	0.000E+00	2.254E-09	3.600E-08	8.863E-08	1.269E-07	2.073E-09	9.000E-09	3.102E-08	4.209E-08	1.125E-03	1.067E-06	2.293E-07
T7 Single Dump Class 8	Diesel	1.079E-08	1.117E-06	5.659E-08	1.417E-08	1.762E-08	3.600E-08	8.711E-08	1.407E-07	1.686E-08	9.000E-09	3.049E-08	5.634E-08	1.497E-03	5.010E-10	2.358E-07
T7 Single Dump Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.438E-08	8.038E-08	0.000E+00	9.000E-09	1.553E-08	2.453E-08	0.000E+00	0.000E+00	0.000E+00
T7 Single Dump Class 8	Natural Gas	1.522E-08	2.237E-07	4.848E-06	0.000E+00	2.125E-09	3.600E-08	8.751E-08	1.256E-07	1.954E-09	9.000E-09	3.063E-08	4.158E-08	1.150E-03	1.065E-06	2.344E-07
T7 Single Other Class 8	Diesel	9.871E-09	1.034E-06	5.139E-08	1.399E-08	1.674E-08	3.600E-08	8.721E-08	1.400E-07	1.602E-08	9.000E-09	3.053E-08	5.554E-08	1.478E-03	4.580E-10	2.328E-07
T7 Single Other Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.438E-08	8.038E-08	0.000E+00	9.000E-09	1.553E-08	2.453E-08	0.000E+00	0.000E+00	0.000E+00
T7 Single Other Class 8	Natural Gas	1.523E-08	1.963E-07	4.470E-06	0.000E+00	2.186E-09	3.600E-08	8.726E-08	1.254E-07	2.010E-09	9.000E-09	3.054E-08	4.155E-08	1.139E-03	1.066E-06	2.322E-07
T7 SWCV Class 8	Diesel	2.631E-08	1.112E-06	5.906E-08	3.043E-08	1.734E-08	3.600E-08	2.100E-07	2.633E-07	1.659E-08	9.000E-09	7.350E-08	9.909E-08	3.214E-03	1.222E-09	5.063E-07
T7 SWCV Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	1.050E-07	1.410E-07	0.000E+00	9.000E-09	3.675E-08	4.575E-08	0.000E+00	0.000E+00	0.000E+00
T7 SWCV Class 8	Natural Gas	2.579E-08	6.938E-07	1.453E-05	0.000E+00	9.900E-10	3.600E-08	2.100E-07	2.470E-07	9.110E-10	9.000E-09	7.350E-08	8.341E-08	1.400E-03	1.805E-06	2.855E-07
T7 Tractor Class 8	Diesel	1.028E-08	1.196E-06	4.826E-08	1.211E-08	2.193E-08	3.600E-08	8.573E-08	1.437E-07	2.098E-08	9.000E-09	3.000E-08	5.999E-08	1.279E-03	4.780E-10	2.015E-07
T7 Tractor Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	4.329E-08	7.929E-08	0.000E+00	9.000E-09	1.515E-08	2.415E-08	0.000E+00	0.000E+00	0.000E+00
T7 Tractor Class 8	Natural Gas	1.458E-08	1.739E-07	3.846E-06	0.000E+00	2.137E-09	3.600E-08	8.574E-08	1.239E-07	1.965E-09	9.000E-09	3.001E-08	4.097E-08	1.078E-03	1.020E-06	2.197E-07
T7 Utility Class 8	Diesel	1.135E-08	1.106E-06	1.045E-07	1.471E-08	7.365E-09	3.600E-08	1.008E-07	1.442E-07	7.047E-09	9.000E-09	3.529E-08	5.134E-08	1.554E-03	5.270E-10	2.448E-07
T7 Utility Class 8	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.600E-08	5.194E-08	8.794E-08	0.000E+00	9.000E-09	1.818E-08	2.718E-08	0.000E+00	0.000E+00	0.000E+00
T7IS	Gasoline	4.472E-07	2.271E-06	3.038E-05	1.797E-08	1.545E-09	2.000E-08	9.641E-08	1.180E-07	1.421E-09	5.000E-09	3.375E-08	4.017E-08	1.818E-03	9.644E-08	1.042E-07
T7IS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.000E-08	4.846E-08	6.846E-08	0.000E+00	5.000E-09	1.696E-08	2.196E-08	0.000E+00	0.000E+00	0.000E+00
UBUS	Gasoline	3.445E-09	1.714E-08	5.737E-07	8.314E-09	1.291E-09	8.000E-09	9.100E-08	1.003E-07	1.187E-09	2.000E-09	3.185E-08	3.504E-08	8.410E-04	1.269E-09	2.818E-09
UBUS	Electricity	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.736E-08	5.500E-08	7.236E-08	0.000E+00	4.341E-09	1.925E-08	2.359E-08	0.000E+00	0.000E+00	0.000E+00

On December 24, 2018, the California Supreme Court, *Sierra Club v. County of Fresno (Friant Ranch, L.P.] (2018) 6 Cal.5th 502, Case No. S219783 (Friant Ranch*), held that simply identifying that a project exceeds an emissions threshold is not sufficient to identify a project's significant effect on the environment relative to the health effects of project emissions. The Court found that an EIR should make a reasonable effort to substantively connect a project's criteria pollutant emissions to likely health consequences, or explain why it is not currently feasible to provide such an analysis. In 2019, there were several CEQA documents that included health effects modeling to provide additional analysis for projects with criteria air pollutant emissions that exceed a significance threshold. While it is technically possible to conduct this modeling, we argue that this additional layer of quantitative analysis may not always provide decision-makers and the public with additional meaningful information. It is the air districts that are best suited to provide frameworks for how to identify health effects of regional criteria pollutant emissions under CEQA.

Introduction

Significance thresholds for regional criteria pollutants used by California air districts and lead agencies represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable national or state ambient air quality standard (AAQS). By analyzing the project's emissions against these thresholds, the CEQA document assesses whether these emissions directly contribute to any regional or local exceedances of the applicable AAQS and exposure levels. The basis of the ruling in Friant Ranch was that the EIR did not provide a meaningful analysis of the adverse health effects that would be associated with the project's criteria pollutant emissions, which were identified as being far above the relevant thresholds. The discussion of the adverse health effects in the EIR was general in nature and did not connect the levels of the pollutants that would be emitted by the project to adverse health effects.

The process of correlating project-related criteria pollutant emissions to health-based consequences is called a health impact assessment (HIA). An HIA involves two steps: 1) running a regional photochemical grid model (PGM) to estimate the small increases in concentrations of ozone and particulate matter (PM) in the region as a result of a project's emissions of criteria and precursor pollutants; and 2) running the U.S. EPA Benefits Mapping and Analysis Program (BenMAP) to estimate the resulting health impacts from these increases in concentrations of ozone and PM.

Limitations of Regional-Scale Dispersion Models

It is technically feasible to conduct regional-scale criteria pollutant modeling for a development project. Particulate matter (PM) can be divided into two categories: directly emitted PM and secondary PM. Secondary PM, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur oxides (SO_x) and NO_x, Ozone (O_3) is a secondary pollutant formed from the oxidation of reactive organic gases (ROGs) and nitrogen oxides (NOx) in the presence of sunlight. Rates of ozone formation are a function of a variety of complex physical factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns.. Secondary formation of PM and ozone can occur far from the original emissions source from regional transport due to wind and topography (e.g. low-level jet stream). As such, modeling concentrations of secondary PM and ozone require photochemical grid models (PGMs), such as CMAQ and CAMx. These models have a much larger "grid" system and much lower resolution than localized dispersion modeling (e.g., AERMOD). For example, common grid cells in PGMs are 4x4 kilometers, while AERMOD can identify concentrations at the meter-level.

Photochemical modeling also depends on all emission sources in the entire domain. Low resolution and spatial averaging produces "noise" and model uncertainty that can exceed a project's specific emissions. Additionally, regional-scale models are highly contingent upon background concentrations. Factors such as meteorology and topography greatly affect the certainty levels of predicted concentrations at receptor points. As a result, there are statistical ranges of uncertainty through all the modeling steps. Due to these factors, it is difficult to predict ground-level secondary PM and ozone concentrations associated with relatively small emission sources with a high degree of certainty. While it is possible to use a regional-scale model to predict these regional concentrations, when a project's emissions are less than the regional model's resolution, the resultant ambient air quality concentrations will be within the margin of uncertainty. In CEQA terms, this would fit the definition of "speculative". Only when the scale of emissions would result in changes in ambient air quality beyond the model margin of uncertainty would the results not be "speculative" as defined by CEQA.

Identifying Health Effects due to Ambient Air Quality Changes

BenMap is a model developed by the USEPA to understand the health effects from changes in ozone and PM concentrations. If there is an acceptable level of confidence that the results provided by the regional dispersion modeling are valid, then these concentrations can be translated into health outcomes using BenMap. The health outcomes in BenMap are based on changes in ambient air concentrations and the population exposed to these changes. Data provided by this analysis may indicate increased number of workdays lost to illness, hospital admissions (respiratory), emergency room visits (asthma), or mortality, among other health effects. These are called "health incidences."

Translating the incremental increase in PM and ozone concentrations to specific health effects is also subject to uncertainty. For example, regional models assign the same toxicity to PM regardless of the source of PM (such as road dust as exhaust), and thus potentially overpredict adverse health effects of PM. BenMap also assumes that health effects can occur at any concentration, including small incremental concentrations, and assumes that impacts seen at large concentration differences can be linearly scaled down to small increases in concentration, with no consideration of potential thresholds below which health impacts may not occur. Additionally, BenMap is used for assessing impacts over large areas and populations and was not intended to be used for individual projects. For health incidences, the number of hospitalizations or increase in morbidity predicted by BenMap is greatly affected by the population characteristics.[1] Small increases in emissions in an area with a high population have a much greater affect than large increases in emissions over an area with a small population. As a result, the same amount of emissions generated in an urban area could result in greater health consequences than if the same emissions occurred on the urban periphery, where fewer people may be affected. This will also depend on other factors including meteorology and photochemistry, as discussed above. Emissions in areas with conditions that favor high air dispersion or unfavorable ozone formation will likely have relatively lower effects on ambient air quality and health outcomes.

While BenMap provides additional statistical information about health consequences requested by the Court in the Friant Ranch decision, this information is only meaningful when presented with the full health context of the region or locality at hand. For example, if the BenMap analysis says that the project would result in two additional hospital admissions, this result alone is not useful unless one identifies how many hospital admissions are caused by poor air quality now (without the project) and how many hospital admissions occur

[1] BenMap assigns prevalence rate for asthma and other health effects based on indicators such as gender, race, age, ethnicity, etc. The BenMap user manual specifically states that there are a wide range of variables that can be included in the health effect function. The health effect function was developed based on epidemiological studies, and specifically states that "there are a number of issues that arise when deriving and choosing between health effect functions that go well beyond this user manual. Hence, it is important to have a trained health researcher assist in developing the impact function data file."

overall (due to air quality and other causes). Because health is not solely influenced by ambient air quality, and has many factors that are highly variable across geographies and populations, there is an added level of uncertainty in using a generalized identification of health effects due to air quality conditions overlaid onto a specific diverse set of health conditions and other factors. Regardless of the uncertainty levels, if regional health effects are identified for a project, then the CEQA analysis needs to provide a full health baseline for decision-makers and the public to be able to understand the marginal change due to project criteria pollutant emissions. Given the margin of uncertainty at each step in the process (regional scale modeling, existing ambient air quality effects on health, population health conditions vulnerability, and marginal health effects of air pollution), the identification of marginal health effects due to individual projects using regional air quality modelling and tools such as BenMap are likely to be within the level of uncertainty and thus defined as "speculative" per CEQA.

The Role of Air Districts

Regional, community, multiscale air quality modeling conducted by the air districts for each individual air basin or locality within the air basin would be the most appropriate indictor of health effects for projects. The AQMPs provide a forecast of regional emissions based on regional dispersion modeling for all sources within the air basin. Regional-scale models attempt to account for all emissions sources within an air basin.

The regional scale model requires inputs such as existing and future regional sources of pollutants and global meteorological data, which are generally not accessible by CEQA practitioners. Modeling of future years should consider future concentrations of air pollutants based on regional growth projections and existing programs, rules, and regulations adopted by Federal, State, and local air districts. In general, air pollution in California is decreasing as a result of Federal and State laws. Based on the air quality management plans (AQMPs) required for air districts in a nonattainment area, air quality in the air basins are anticipated to improve despite an increase in population and employment growth. Air districts are charged with assessing programs, rules, and regulations so that the increase in population and employment does not conflict with the mandate to achieve the AAQS. Because emissions forecasting and health outcomes based on the regional growth projections to achieve the AAQS is under the purview of the air districts, it should also fall on the air districts to identify the potential health outcomes associated with individual project's criteria pollutant emissions.

The South Coast Air Quality Management District (South Coast AQMD) and the Sacramento Metropolitan Air Quality Management District (Sacramento Metropolitan AQMD) are exploring concepts for project-level analysis in light of Friant Ranch to assist local lead agencies.

» South Coast AQMD is looking at the largest land use development project they have had in the air basin and doing a sensitivity analysis (using CAMx for photochemical grid modeling and BenMap for health outcomes) to see how locating a very large project in different parts of the air basin (Los Angeles, Inland Empire, v. Orange County) would affect the health incidence.

» Sacramento Metropolitan AQMD is also looking at a screening process. Rather than looking at the upper end (i.e., largest project in the air basin), Sacramento Metropolitan AQMD is starting at the smallest project that exceeds the regional significance threshold and running CAMx and BenMap at different locations in the air basin to see how it affects regional health incidences.

Guidance from Air Districts would be the most effective way to incorporate meaningful information concerning regional health effects of project criteria pollutants in CEQA analyses, including guidance as to when modelling is and is not useful and meaningful, how modelling should be conducted, and how to best present additional information to inform decision-makers and the public about a project's impacts.

So…until air districts do their part, what should we do?

PROJECTS WITH CRITERIA POLLUTANT EMISSIONS BELOW AIR DISTRICT THRESHOLDS

The Friant Ranch ruling was about providing disclosure of health effects of project emissions that were well over the significance thresholds. Since the air district thresholds are tied to a level the air districts find to not have a significant effect on ambient air quality, there should be no need to discuss the health effects of criteria pollutant emissions that are less than the significance thresholds.

PROJECTS WITH CRITERIA POLLUTANT EMISSIONS ABOVE AIR DISTRICT THRESHOLDS

Pursuant to Section 15125 of the CEQA Guidelines, the environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. For CEQA, the health effects associated with buildout of a project would occur at the project's horizon year. Because CEQA requires an analysis of the change from existing conditions, the change in effects would be associated with changes in ambient air quality and associated health outcomes between existing conditions and the project's horizon year. Therefore, in order to show how a project affects health outcomes in an air basin, the CEQA documents will need to qualitatively or quantitatively address: (1) existing ambient criteria pollutant concentrations, health incidences due to existing air quality, and health incidences overall; 2) future (without project) ambient criteria pollutant concentrations and health incidences, and 3) future (with project) ambient criteria pollutant concentrations and health incidences.

Projects with significant criteria pollutant emissions could use regional modelling and BenMap to identify health effects of project emissions, but it is likely that many (or most) projects that are not regionally substantial in scale will be shown to have minimal regional changes in PM and ozone concentrations and therefore minimal changes in associated health effects. In addition, many projects may have emissions that are less than the uncertainty level of regional air quality models and BenMap health effects modeling; in these cases, quantitative results will not be meaningful. Thus, absent better direction from air districts, CEQA lead agencies will have to determine on a case by case basis whether a qualitative discussion of health effects will suffice, or whether regional modeling, despite its limitations, should be conducted for the project.

Where a project has substantial criteria pollutant emissions when considered on a regional scale, and there is reason to believe that the modeling of ambient air quality and regional health effects would produce non-speculative results when considering modeling uncertainties, then CEQA lead agencies should use regional modelling.

Conclusion

The purpose of CEQA is to inform the public as to the potential for a project to result in one or more significant adverse effects on the environment (including health effects). A CEQA document must provide an understandable and clear environmental analysis and provide an adequate basis for decision making and public disclosure. Regional dispersion modeling of criteria pollutants and secondary pollutants like PM and ozone can provide additional information, but that information may be within the margin of modelling uncertainty and/or may not be meaningful for the public and decision-makers unless a full health context is presented in the CEQA document. Simply providing health outcomes based on use of a regional-scale model and BenMap may not satisfy the goal to provide decision-makers and the public with information that would assist in weighting the environmental consequences of a project. A CEQA document must provide an analysis that is understandable for decision making and public disclosure. Regional scale modeling may provide a technical method for this type of analysis, but it does not necessarily provide a meaningful way to connect the magnitude of a project's criteria pollutant emissions to health effects without speculation.

In order to accurately connect the dots, we urge California air districts to provide more guidance on how to identify and describe the health effects of exceeding regional criteria pollutant thresholds. The air districts are the primary agency responsible for ensuring that the air basins attain the AAQS and ensure the health and welfare of its residents relative to air quality. Because emissions forecasting and health outcomes are based on the regional growth projections to achieve the AAQS is under the purview of the air districts, it should fall on the air districts to identify the potential health outcomes associated with exceeding the CEQA thresholds for projects. The air districts should provide lead agencies with a consistent, reliable, and meaningful analytical approach to correlate specific health effects that may result from a project's criteria pollutant emissions.

Glossary

AAQS – Ambient Air Quality Standards

BenMap – Benefits Mapping and Analysis Program

CAMx – Comprehensive Air Quality Model with extensions

CMAQ – Community Multiscale Air Quality

NOx – Nitrogen Oxides

PM – Particulate Matter

SOx – Sulfur Oxides

State – California

USEPA – United States Environmental Protection Agency

S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

SUPREME COURT
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After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

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TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

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BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights I*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq*.

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality

management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health",

allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1*, *supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it

is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from

the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6*)* at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6,* http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine

that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5}$. (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties. [9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document*." (*Laurel Heights I, supra*, 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I, supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority*, *supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield*, *supra*, 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra*, at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

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[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay, supra,* 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
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CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,

Barbara Baird

Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

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SUPREME COURT COPY

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

SUPREME COURT
FILED
APR 13 2015
Frank A. McGuire Clerk
Deputy

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality

conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

[1] San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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[2] *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

[3] Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

[4] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

[5] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

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[6] CEQA does not require speculation. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015



Annette A. Ballatore-Williamson
District Counsel
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

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Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

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I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health,

they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully

appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

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[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).

[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).

[6] *Id.*

[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).

[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).

[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf (visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041l.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club*, *supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated

with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

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[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the

opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing',"* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

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Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY
UNIFIED
AIR POLLUTION CONTROL
DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015

Annette A. Ballatore-Williamson
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Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) (**BY MAIL**) I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) (**BY ELECTRONIC MAIL**) I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) (**BY OVERNIGHT MAIL**) I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

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Appendices

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Appendix 5.4-1 Biological Resources Technical Memorandum for the City of Redding General Plan Update

Biological Resources Technical Memorandum for the City of Redding General Plan Update

Prepared For:

The City of Redding

Prepared By:

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May 12, 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
BA	Biological Assessment
BCC	Birds of Conservation Concern
BO	Biological Opinion
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
DPS	Distinct Population Segment
Element	Natural Resources Element
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
HCP	Habitat Conservation Plan

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Description
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
Project	City of Redding's General Plan Update
SSC	Species of Special Concern
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

On behalf of the City of Redding, ECORP Consulting, Inc. conducted a biological resources review for the City of Redding's General Plan Update (Project). The City is located in the extreme northern end of California's Central Valley. The purpose of the review was to collect and evaluate information on sensitive biological resources potentially present within the planning area, including special-status species, natural communities, and aquatic resources.

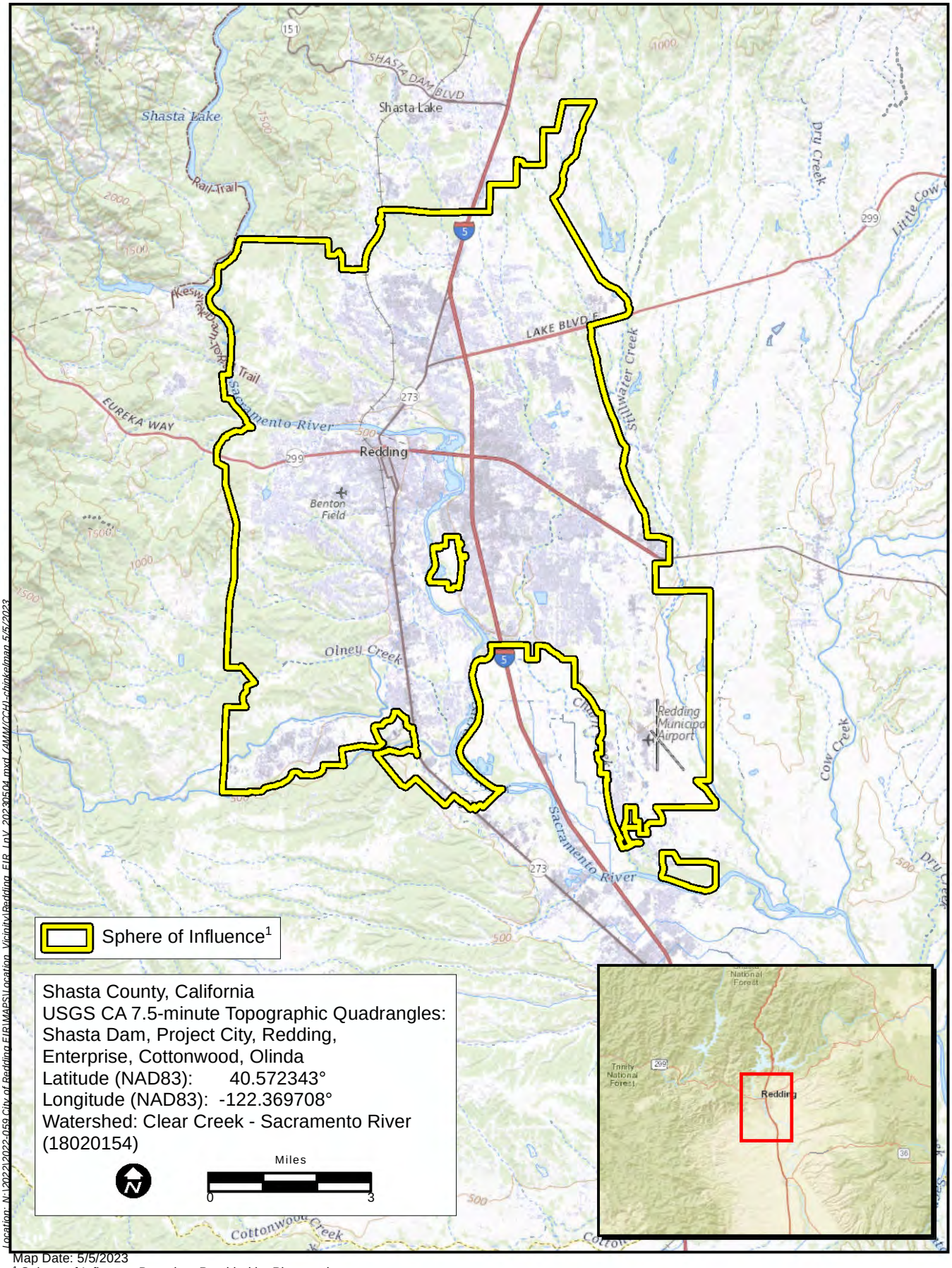
1.1 Project Location

The Project Area includes the entire Redding Sphere of Influence and includes portions of the "Shasta Dam, California," "Project City, California," Redding, California," "Enterprise, California," "Olinda, California," and "Cottonwood, California" USGS 7.5-minute quadrangles (U.S. Geological Survey [USGS], 1957a, 1957b, 1957c, 1964, 1965, 1998) (Figure 1). The approximate center of the site is located at 40.587190° North and -122.408782° West within the Clear Creek – Sacramento River watershed (Hydrologic Unit Code # 18020154) (USGS 2020).

1.2 Purpose

Per the requirements outlined in the City of Redding's Environmental Impact Report, this report aims to identify sensitive biological resources or special-status species and their habitats that occur or have potential to occur within the Redding Sphere of Influence. For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of California Environmental Quality Act (CEQA) Guidelines;
- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);



Location: N:\2022\2022-059 City of Redding EIR\MAPS\Location_Vicinity\Redding_EIR_LocVic_20230504.mxd (AM)(CCH) chinkelman 5/5/2023

Map Date: 5/5/2023

[1] Sphere of Influence Boundary Provided by Placeworks

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 1. Project Location and Vicinity *2022-059 City of Redding EIR*

- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2), plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);

- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, § 1900 et seq.); or

- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. Other species without special status that are sometimes found in database or literature searches were not included in this analysis.

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S. Code [USC] 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed for listing) species (including plants) or its Critical Habitat. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan (HCP) is developed.

2.1.1.1 Section 7

Section 7 of the ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that their actions do not jeopardize the continued existence of a listed species or adversely modify Critical Habitat for listed species. If adverse effects to a species or its Critical Habitat are likely, the applicant must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and Critical Habitat to establish and justify an "effect determination." The USFWS or NMFS reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it

prepares a biological opinion (BO). Through consultation and the issuance of a BO, the USFWS and NMFS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat. The BO will also evaluate whether direct and/or indirect effects will occur to Critical Habitat that would appreciably diminish the value of Critical Habitat for both the survival and recovery of a species.

2.1.1.2 Section 10

When no discretionary action is being taken by a federal agency but a project may result in the take of listed species, an incidental take permit (ITP) under Section 10 of the ESA is necessary. The purpose of the ITP is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an ITP under Section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The protections of the MBTA extend to disturbances that result in abandonment of a nest with eggs or young. As authorized by the MBTA, the USFWS may issue permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3 Essential Fish Habitat

Essential Fish Habitat (EFH) was defined by the U.S. Congress in the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, or Magnuson-Stevens Act, as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." Implementing regulations clarified that waters include all aquatic areas and their physical, chemical, and biological properties; substrate includes the associated biological communities that make these areas suitable for fish habitats, and the description and identification of EFH should include habitats used at any time during

the species' life cycle. EFH includes all types of aquatic habitat, such as wetlands, coral reefs, sand, seagrasses, and rivers.

2.1.4 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas:

> "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b).

The U.S. Environmental Protection Agency (USEPA) also has authority over wetlands and may override a USACE permit.

Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.2 State Regulations

2.2.1 California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) protects species of fish, wildlife, and plants listed by the State as endangered or threatened. Species identified as candidates for listing may also receive protection. Section 2080 of the California ESA prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The California ESA allows for take incidental to otherwise lawful projects under permits issued by CDFW. State lead agencies are required to consult with the CDFW to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered, threatened or candidate species or result in destruction or adverse modification of essential habitat. For projects with no discretionary state approvals, Section 2081 allows CDFW to authorize incidental take permits if certain conditions are met. Permittees must implement species-specific minimization and avoidance measures, and fully mitigate the impacts of the project.

2.2.2 Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. Fully protected species are identified in the California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish.

These sections of the California Fish and Game Code provide that fully protected species may not be taken or possessed at any time, including prohibition of CDFW from issuing incidental take permits for fully protected species under the California ESA. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

2.2.3 Native Plant Protection Act

The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was established with the intent to "preserve, protect and enhance rare and endangered plants in this state." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as "endangered" or "rare." The NPPA prohibits the take of plants listed under the NPPA, though the NPPA contains exemptions to this prohibition that have not been clarified by regulation or judicial rule. In 1984, the California ESA brought under its protection all plants previously listed as endangered under the NPPA. Plants listed as rare under the NPPA are not protected under the California ESA but are still protected under the provisions of the NPPA. The Fish and Game Commission no longer lists plants under the NPPA, reserving all listings to the California ESA.

2.2.4 California Fish and Game Code Special Protections for Birds

In addition to protections contained within the California ESA and California Fish and Game Code § 3511 described above, the California Fish and Game Code includes a several sections that specifically protect certain birds:

- Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the California Fish and Game Commission or a mitigation plan approved by CDFW for mining operations.

- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.

- Section 3503.5 protects birds of prey (which includes eagles, hawks, falcons, kites, ospreys, and owls) and prohibits the take, possession, or destruction of any birds and their nests.

- Section 3505 makes it unlawful to take, sell, or purchase egrets, ospreys, and several exotic nonnative species, or any part of these birds.

- Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

2.2.5 California Streambed Alteration Notification/Agreement

Section 1602 of the California Fish and Game Code requires that a Streambed Alteration Agreement (SAA) be obtained from CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW reviews the proposed actions and, if necessary, submits proposed measures to protect affected fish and wildlife resources to the applicant. The SAA is the final proposal mutually agreed upon by CDFW and the applicant. Projects that require an SAA often also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA overlap.

2.2.6 California Environmental Quality Act

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. Impacts to biological resources would normally be considered significant if a project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;

- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;

- have a substantial adverse effect on federally protected Waters of the U.S., including wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;

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

- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish or result in the loss of an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

In accordance with CEQA Guidelines § 15380, a species or subspecies not specifically protected under the federal or California ESAs or NPPA may be considered endangered, rare, or threatened for CEQA review purposes if the species meets certain criteria specified in the Guidelines. These criteria parallel the definitions used in the ESA, California ESA, and NPPA. Section 15380 was included in the CEQA Guidelines primarily to address situations in which a project under review may have a significant effect on a species that has not been listed under the ESA, California ESA, or NPPA, but that may meet the definition of endangered, rare, or threatened. Animal species identified as SSC by CDFW, birds identified as BCC by USFWS, and plants identified by the CNPS as rare, threatened, or endangered may meet the CEQA definition of rare or endangered.

2.2.6.1 Species of Special Concern

The CDFW defines SSC as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal ESA, California ESA, or California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.

- The species is listed as federally (but not state) threatened or endangered or meets the state definition of threatened or endangered but has not formally been listed.

- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.

- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

- SSC are typically associated with habitats that are threatened.

Depending on the policy of the lead agency, projects that result in substantial impacts to SSC may be considered significant under CEQA.

2.2.6.2 U.S. Fish and Wildlife Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, USFWS published a list of BCC for the U.S. (USFWS 2021). The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

2.2.6.3 Sensitive Natural Communities

The CDFW maintains the California Natural Community List, which provides a list of vegetation alliances, associations, and special stands as defined in *A Manual of California Vegetation* (Sawyer et al. 2009), along with their respective state and global rarity ranks. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Depending on the policy of the lead agency, impacts to sensitive natural communities may be considered significant under CEQA.

2.2.6.4 California Rare Plant Ranks

The CNPS maintains the Inventory of Rare and Endangered Plants of California (CNPS 2022), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or have low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, nongovernmental organizations, and private-sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere.
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere.
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere.
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere.
- Rare Plant Rank 3 – a review list of plants about which more information is needed.

- Rare Plant Rank 4 – a watch list of plants of limited distribution.

Additionally, CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat).

- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat).

- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2022).

Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, 2, and 3 are typically considered significant under CEQA Guidelines § 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 4 and at the discretion of the CEQA lead agency.

2.2.7 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)), and includes waters that are not regulated by the USACE due to a lack of connectivity with a navigable water body. In 2021, the First Appellate District of the California Courts of Appeal issued an opinion that interpreted the RWQCB's authority to extend to discharges of dredge and fill materials into Waters of the State. The RWQCB may require issuance of Waste Discharge Requirements for these activities.

2.3 Local Plans and Ordinances

2.3.1 City of Redding Zoning Ordinance

Chapter 18.45 of the Redding Zoning Ordinance, titled "Tree Management," discusses the benefits and functions of trees while outlining maintenance, tree removal provisions, tree protection guidelines, and other provisions concerning trees and their management. The City's intent is to protect and enhance the community's aesthetic provided by native and non-native trees while preserving the City's natural features. It also requires the replacement of removed trees, establishes a tree planting program for new development, and requires a tree removal permit for removal of trees on vacant or undeveloped land (City of Redding Municipal Code, Title 18, § 45).

3.0 METHODS

3.1 Literature Review

The following resources were reviewed to identify sensitive biological resources or special-status species that have been documented within or in the vicinity of the Project Area. The results of these searches are included as Attachment A.

- CDFW CNDDB data for the "Shasta Dam, California," "Project City, California," "Redding, California," "Enterprise, California," "Olinda, California," and "Cottonwood, California," 7.5-minute USGS quadrangles (CDFW 2022a).

- USFWS Information, Planning, and Consultation (IPaC) System Resource Report List for the Project Area (Redding Sphere of Influence) (USFWS 2022).

- CNPS' electronic Inventory of Rare and Endangered Plants of California for the "Shasta Dam, California," "Project City, California," "Redding, California," "Enterprise, California," "Olinda, California," and "Cottonwood, California," 7.5-minute USGS quadrangles (CNPS 2022).

- NMFS Resources data for the "Shasta Dam, California," "Project City, California," "Redding, California," "Enterprise, California," "Olinda, California," and "Cottonwood, California," 7.5-minute USGS quadrangles (National Oceanic and Atmospheric Administration [NOAA] 2022a).

Aerial imagery and site or species-specific background information, as cited throughout this document, were reviewed to determine the potential for occurrence of sensitive biological resources within or in the vicinity of the Project Area. Modeled habitat, species range data, final critical habitat data, and other datasets in CDFW's Biogeographic Information and Observation System was also used to make determinations of a species' potential to occur (CDFW 2022b). A site visit was not conducted due to the large area of the Project. Detailed maps of soils, vegetation, and aquatic resources were created to make the most accurate determinations of species presence as possible. Vegetation land cover types were mapped using Classification and Assessment with Landsat of Visible Ecological Groupings (CalVeg). A map

of aquatic resources was created used the California Aquatic Resources Inventory (CARI). Finally, a soils map was created using soil data from the Natural Resources Conservation Service (NRCS). These data were used in conjunction with aerial imagery to assess the potential for special-status species to occur and to identify other sensitive biological resources in the Project area including aquatic resources and sensitive vegetation communities.

3.2 Special-Status Species Considered for the Project Area

A list of special-status species was generated from the database queries described in Section 3.1 (Attachment B). Each of the species was evaluated for its potential to occur within the Project Area based on the literature review, mapped habitat, and soils and vegetation data. The species were categorized based on the following criteria:

- **Documented Occurrence** - Species is known to occur within the Project Area based on documented occurrences in the CNDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Project Area.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Project Area based on CNDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and the species is not known to occur within the vicinity of the Project Area based on CNDDB records and other documentation.

4.0 RESULTS

4.1 Site Characteristics and Land Use

The Project Area is characterized by a mixture of urban, riparian, and woodland land cover types bordered on the north and west by low mountains and foothills of the Klamath and Inner Coast Ranges and on the south and east by low-density residential areas and agriculture. It is located within the Inner North Coast Ranges and Cascade Range Foothills geographic subdivisions, with a very small portion on the western side that is located within the Klamath Ranges (Baldwin et al. 2012). The average winter low temperature in the vicinity of the Project Area is 38.1° Fahrenheit, while the average summer high temperature is 93° Fahrenheit (NOAA 2022b).

Land use in the Project Area includes commercial, industrial, residential, and recreational uses. The central portion of the Project Area includes the City of Redding and is classified as urban. The surrounding landscape consists of agriculture, low- and medium-density residential areas, and undeveloped open

space. The majority of the Project Area's land cover is classified as urban (15,199 acres). Blue Oak Woodland (8,814 acres), Blue Oak-Foothill Pine (6,275 acres), Mixed Chaparral (6,567 acres), and Annual Grassland (5,371 acres) land cover types also cover large portions of the Project Area (Table 1). Please see Figure 2 for a map of CalVeg land cover types.

Table 1. CalVeg Land Cover Types and Acreage within Redding Sphere of Influence

Land Cover Type (CalVeg)	Acres
Annual Grassland	5,371.07
Barren	3,165.60
Blue Oak Woodland	8,813.63
Blue Oak-Foothill Pine	6,274.90
Cropland	566.39
Fresh Emergent Wetland	13.88
Lacustrine	261.55
Mixed Chaparral	6,566.67
Montane Hardwood	54.18
Pasture	86.22
Riverine	989.40
Urban	15,198.96
Valley Foothill Riparian	730.09
Valley Oak Woodland	1,323.67
Grand Total:	**49,416.21**

4.2 Soils

There are 71 soil types that fall within the Project Area (Figure 3) (NRCS 2022a). Of these 71 soil types, 25 contain hydric components. Hydric soils are defined as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils and their associated component landforms are associated with soils found within basin floors, basin rims, alluvial fans, fan aprons, or sloughs. These soil types are identified in Table 2 below (NRCS 2022b).

Map Features

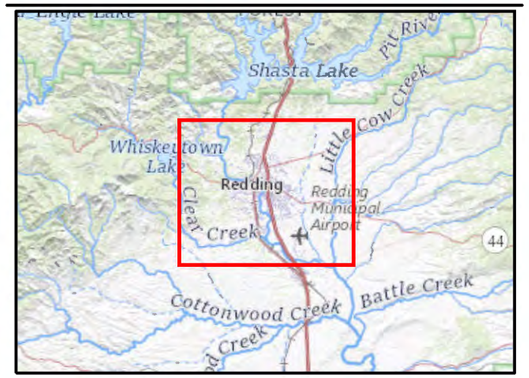
- Sphere of Influence

USFS Calveg

Land Cover Type

- Annual Grassland
- Barren
- Blue Oak Woodland
- Blue Oak-Foothill Pine
- Cropland
- Fresh Emergent Wetland
- Lacustrine
- Mixed Chaparral
- Montane Hardwood
- Pasture
- Riverine
- Urban
- Valley Foothill Riparian
- Valley Oak Woodland

Sources: ESRI, USGS, CDFW, USFS, Placeworks



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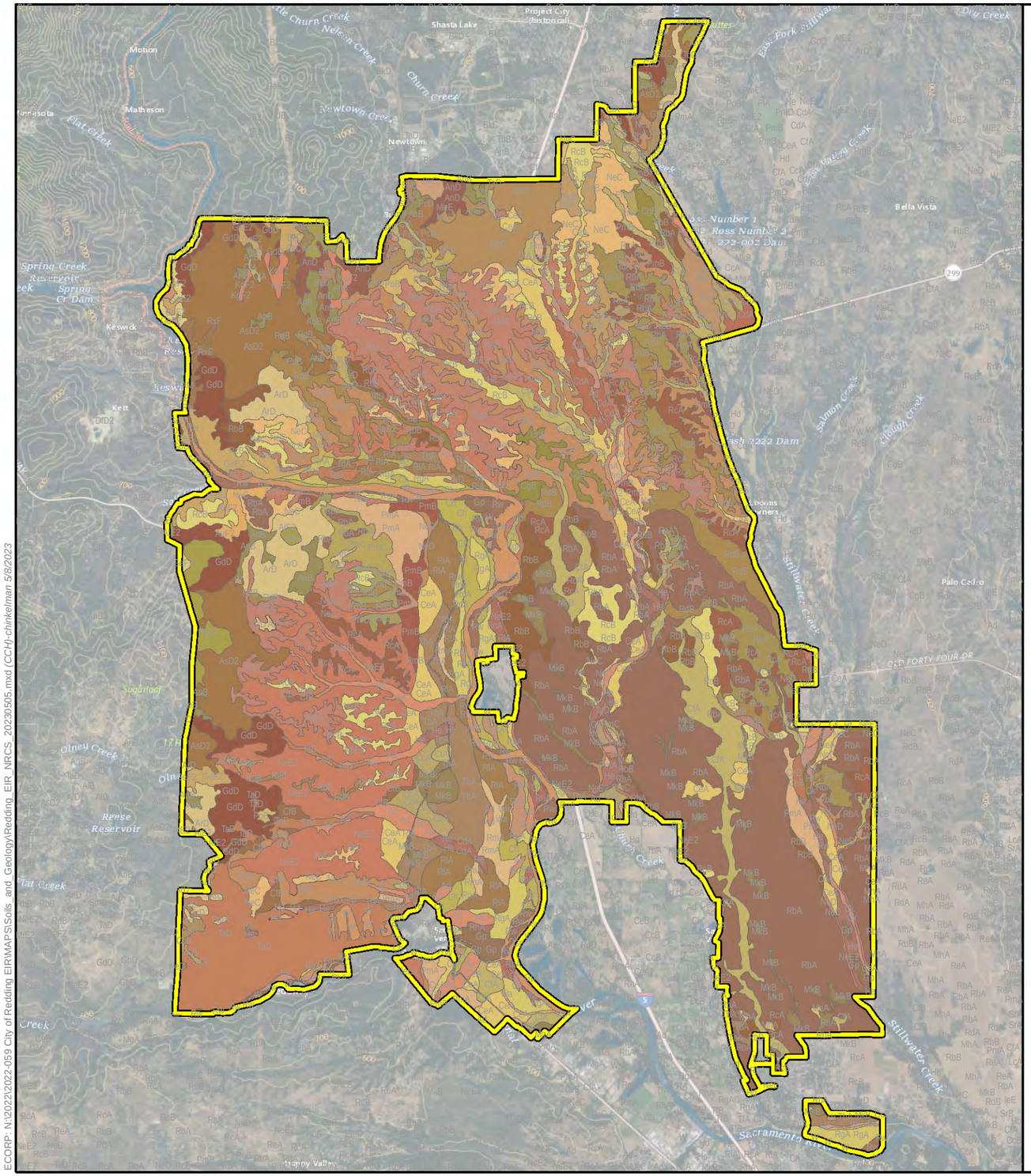
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Figure 2. CalVeg - Land Cover

2022-059 City of Redding EIR



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Map Features

Sphere of Influence

Series Designation - Series Description

- Ad - Anderson gravelly sandy
- Ae - Anderson gravelly sandy loam, moderately
- AnB - Auburn loam, 0 to 8 percent
- AnD - Auburn loam, 8 to 30 percent
- ArD - Auburn very stony loam, 8 to 30 percent
- AsD2 - Auburn clay loam, 8 to 30 percent slopes,
- AtE2 - Auburn very stony clay loam, 30 to 50 percent slopes,
- AuF2 - Auburn very rocky clay loam, 50 to 70 percent slopes,
- BkC - Boomer gravelly loam, 0 to 15 percent slopes
- BkD - Boomer gravelly loam, 15 to 30 percent slopes
- BoE3 - Boomer very stony clay loam, 30 to 50 percent slopes, severely eroded
- CcA - Churn loam, 0 to 3 percent
- CcB - Churn loam, 3 to 8 percent slopes
- CdA - Churn loam, slightly wet, 0 to 3 percent slopes
- CeA - Churn gravelly loam, 0 to 3 percent slopes
- CeB - Churn gravelly loam, 3 to 8 percent slopes
- CfA - Churn gravelly loam, deep, 0 to 3 percent slopes
- CfB - Churn gravelly loam, deep, 3 to 8 percent slopes
- CgB - Clough gravelly loam, 3 to 8 percent slopes
- Ch - Cobbly alluvial land
- Ck - Cobbly alluvial land, frequently flooded
- DAM - Dams
- GbD - Gaviota very rocky sandy loam, 0 to 30 percent slopes
- GdD - Goulding very stony loam, 10 to 30 percent slopes
- GeE2 - Goulding very rocky loam, 30 to 50 percent slopes, eroded
- GeF2 - Goulding very rocky loam, 50 to 70 percent slopes, eroded
- Gp - Gravel pits
- Hd - Honcut loam
- He - Honcut gravelly loam
- Hf - Honcut gravelly loam, deep
- HhA - Honn gravelly sandy loam, 0 to 3 percent slopes
- KgF2 - Kidd very rocky loam, 10 to 60 percent slopes, eroded
- MeD - Millsholm gravelly loam, 3 to 30 percent slopes
- MeE - Millsholm gravelly loam, 30 to 50 percent slopes, MLRA 15
- MgA - Moda loam, 0 to 3 percent slopes, MLRA 17
- MhA - Moda loam, seeped, 0 to 3 percent slopes
- MkB - Moda loam, shallow, 0 to 5 percent slopes
- NeC - Newtown gravelly loam, 8 to 15 percent slopes
- NeD - Newtown gravelly loam, 15 to 30 percent slopes
- NeE2 - Newtown gravelly loam, 30 to 50 percent slopes, eroded
- PcD - Parrish loam, 8 to 30 percent slopes
- PcE - Parrish loam, 30 to 50 percent slopes
- PlA - Perkins loam, moist, 0 to 3 percent slopes, MLRA 17
- PmA - Perkins gravelly loam, gravelly clay loam substratum, 0 to 3 percent slopes, MLRA 17
- PmB - Perkins gravelly loam, 3 to 8 percent slopes
- PmC - Perkins gravelly loam, 8 to 15 percent slopes
- PmD - Perkins gravelly loam, gravelly clay loam substratum, 8 to 30 percent slopes, MLRA 17
- PoA - Perkins gravelly loam, moderately deep, 0 to 3 percent slopes
- PoB - Perkins gravelly loam, moderately deep, 3 to 8 percent slopes
- RbA - Red Bluff loam, 0 to 3 percent slopes, MLRA 17, moist
- RbB - Red Bluff loam, 3 to 8 percent slopes
- RcA - Red Bluff gravelly loam, moderately deep, 0 to 3 percent slopes
- RcB - Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes
- RdA - Redding gravelly loam, 0 to 5 percent slopes, moist, MLRA 17
- RdB - Redding gravelly loam, 0 to 15 percent slopes, moist, MLRA 17
- ReA - Redding-Red Bluff gravelly loams, 0 to 3 percent slopes
- ReB - Redding-Red Bluff gravelly loams, 3 to 8 percent slopes
- RgA - Reiff fine sandy loam, 0 to 3 percent slopes
- RhA - Reiff fine sandy loam, deep, 0 to 3 percent slopes
- RkA - Reiff gravelly fine sandy loam, deep, 0 to 3 percent slopes
- RlA - Reiff loam, 0 to 3 percent slopes
- RmA - Reiff loam, seeped, 0 to 3 percent slopes
- RnA - Reiff gravelly loam, 0 to 3 percent slopes
- Rw - Riverwash
- RxF - Rockland
- TaD - Tailings and placer diggings
- TbA - Tehama loam, 0 to 3 percent slopes, MLRA 17
- TeD - Toomes very stony loam, 0 to 30 percent
- TfA - Tujunga loamy sand, 0 to 3 percent slopes
- W - Water
- Wa - Wet alluvial land

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (gSSURGO) Database for Shasta County, CA

Map Date: 5/8/2023

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Figure 3. Natural Resources Conservation Service Soil Types

2022-059 City of Redding EIR

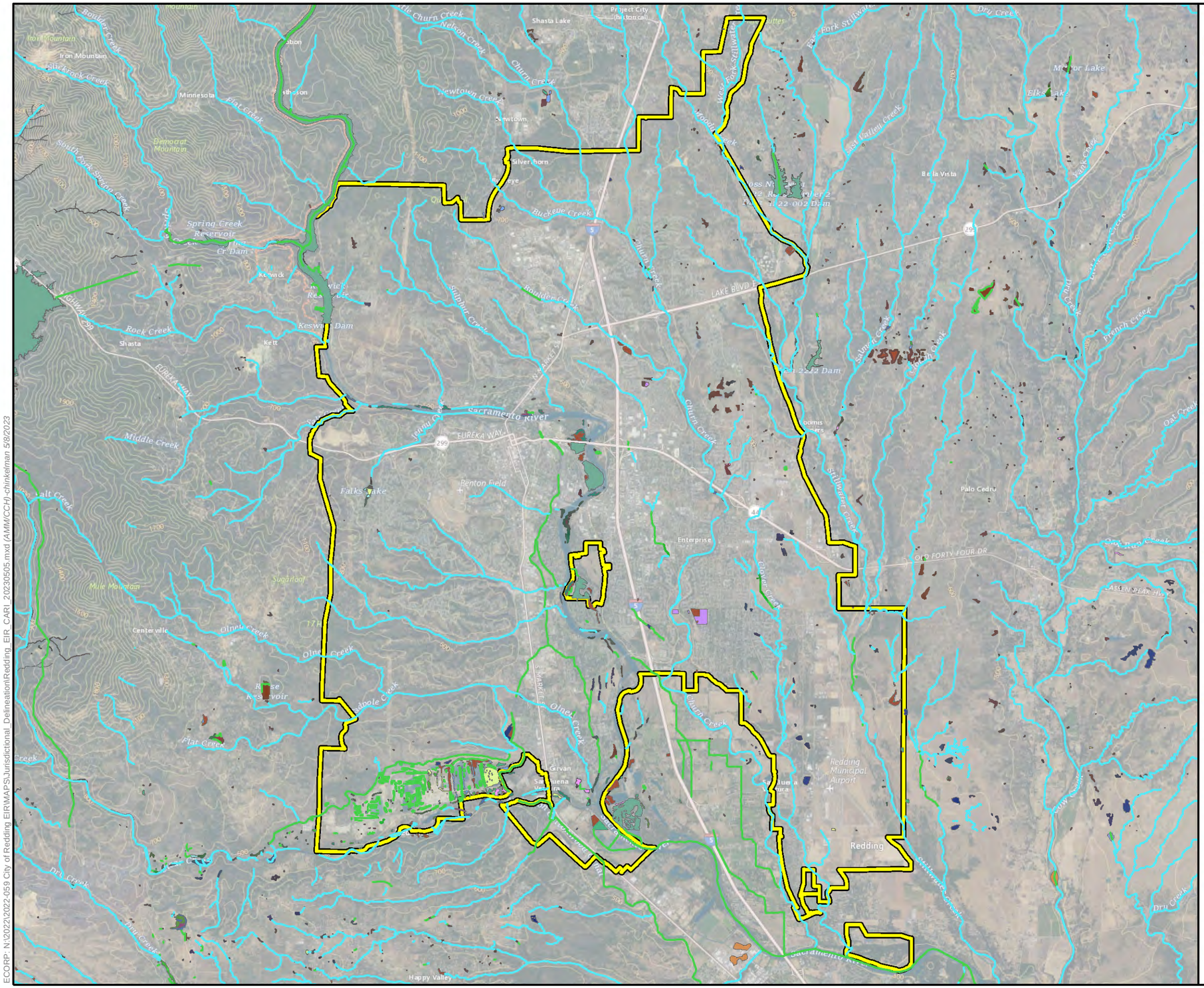
Table 2. List of NRCS Soil Types within the Project Area	
Soil Type	**Landform**
Ad – Anderson gravelly sandy loam	Channels
Ae - Anderson gravelly sandy loam, moderately deep	Channels
CcB - Churn loam, 3 to 8 percent slopes	Channels
CdA - Churn loam, slightly wet, 0 to 3 percent slopes	Channels
CeA - Churn gravelly loam, 0 to 3 percent slopes	Channels
CeB - Churn gravelly loam, 3 to 8 percent slopes	Channels
CfA - Churn gravelly loam, deep, 0 to 3 percent slopes	Channels
CfB - Churn gravelly loam, deep, 3 to 8 percent slopes	Channels
Ch - Cobbly alluvial land	Channels
Ck - Cobbly alluvial land, frequently flooded	Floodplains
HhA - Honn gravelly sandy loam, 0 to 3 percent slopes	Floodplains, Channels
MhA - Moda loam, seeped, 0 to 3 percent slopes	Drainageways, Fan remnants, Stream terraces
MkB - Moda loam, shallow, 0 to 5 percent slopes	Fan remnants, Stream terraces
PmA - Perkins gravelly loam, gravelly clay loam substratum, 0 to 3 percent slopes, MLRA 17	Drainageways, Stream terraces
RbA - Red Bluff loam, 0 to 3 percent slopes, MLRA 17, moist	Fan remnants
RcA - Red Bluff gravelly loam, moderately deep, 0 to 3 percent slopes	Fan remnants
RcB - Red Bluff gravelly loam, moderately deep, 3 to 8 percent slopes	Fan remnants
RdA - Redding gravelly loam, 0 to 5 percent slopes, moist, MLRA 17	Fan remnants
ReA - Redding-Red Bluff gravelly loams, 0 to 3 percent slopes	Fan remnants
ReB - Redding-Red Bluff gravelly loams, 3 to 8 percent slopes	Fan remnants
RmA - Reiff loam, seeped, 0 to 3 percent slopes	Floodplains
Rw - Riverwash	Channels
TaD - Tailings and placer diggings	Floodplains
TfA - Tujunga loamy sand, 0 to 3 percent slopes	Floodplains, Channels
Wa - Wet alluvial land	Floodplains

4.3 California Aquatic Resource Inventory

The California Aquatic Resource Inventory (CARI; San Francisco Estuary Institute [SFEI] 2017) is a statewide map of surface waters and related habitats combining multiple national and regional datasets, including the National Wetlands Inventory and the National Hydrography Dataset. CARI includes aquatic resource features mapped using a variety of remote sensing and modeling techniques. As such, these aquatic features may or may not exist as represented. In addition, CARI data varies in detail, accuracy, and age, and is meant to be used as a tool to assist with an aquatic resource delineation but not as the only source of information (SFEI 2017). Therefore, it is recommended that ground-level surveys be conducted to determine the presence of aquatic resources subject to the jurisdiction of state and federal agencies prior to making site-specific land use decisions.

According to CARI (SFEI 2017, California Wetlands Monitoring Workgroup 2022), 18 aquatic feature types have been mapped within the EIR Study Area (Figure 4):

- Fluvial Natural
- Fluvial Unnatural
- Depressional Perennial Natural Emergent
- Depressional Perennial Natural Non-vegetated
- Depressional Perennial Non-vegetated
- Depressional Perennial Unnatural Emergent
- Depressional Perennial Unnatural Non-vegetated
- Depressional Perennial Unnatural Vegetated
- Depressional Seasonal
- Depressional Seasonal Natural Emergent
- Depressional Seasonal Natural Forested
- Depressional Seasonal Natural Shrub-Scrub
- Depressional Seasonal Unnatural Emergent
- Depressional Seasonal Unnatural Forested



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Map Features

- Sphere of Influence

CARI Data Version 0.3 (December 2017)

Streams

- Fluvial Natural
- Fluvial Unnatural

Wetlands

- Depressional Perennial Natural Emergent
- Depressional Perennial Natural Non-vegetated
- Depressional Perennial Non-vegetated
- Depressional Perennial Unnatural Emergent
- Depressional Perennial Unnatural Non-vegetated
- Depressional Perennial Unnatural Vegetated
- Depressional Seasonal
- Depressional Seasonal Natural Emergent
- Depressional Seasonal Natural Forested
- Depressional Seasonal Natural Shrub-Scrub
- Depressional Seasonal Unnatural Emergent
- Depressional Seasonal Unnatural Forested
- Depressional Seasonal Unnatural Non-vegetated
- Depressional Seasonal Unnatural Shrub-Scrub
- Depressional Unnatural Non-vegetated
- Lacustrine Unnatural Non-vegetated

Sources: NAIP 2020, CARI 2017, Placeworks, ECORP Consulting Inc.



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Figure 4. California Aquatic Resources Inventory

2022-059 City of Redding EIR

- Depressional Seasonal Unnatural Non-vegetated
- Depressional Seasonal Unnatural Shrub-Scrub
- Depressional Unnatural Non-vegetated
- Lacustrine Unnatural Non-vegetated

Fluvial systems are dominated by rivers and streams. The fluvial unnatural aquatic feature type corresponds to irrigation canals and drainage ditches. Fluvial natural corresponds to portions of the Sacramento River and its tributaries in the surrounding area, such as Olney Creek, Tadpole Creek, and Clear Creek.

Depressional perennial or seasonal features consist of both natural and unnatural wetlands. Unnatural wetland features include manufactured lakes and ponds, agricultural ponds, and manufacturing and construction-related ponds (e.g., Shasta Redi-Mix ponds). Natural wetland features include natural floodplain features, riparian forests, and depressional wetlands found throughout the Project Area.

Lacustrine unnatural non-vegetated features include manufactured ponds and lakes and can be found along the Sacramento River south of the terminus of Gravel Plant Road, north of Riverview Country Club, and on the west side of the river, south of the Highway 44 crossing.

4.4 Special-Status Species

The results of the database queries are included in Attachment A. A total of 96 special status plants and animals were returned, including 39 plants; 7 invertebrates; 15 fish; 4 amphibians; 1 reptile; 20 birds; and 10 mammals. Of these, 4 plants, 1 invertebrate, 1 fish, 1 amphibian, and 5 birds were determined to be absent from the Project Area upon further investigation. No further discussion of those species is provided in this assessment. A total of 84 special-status species were determined to be either present or have potential to occur within the Project Area.

4.4.1 Plants

A total of 35 special-status plant species have potential or low potential to occur within the Project Area as presented below. A large portion of the rare plants can be found in cismontane woodland, lower coniferous forest, chaparral, and valley and foothill grassland. Several species are also commonly associated with wetlands and vernal pool habitat types. Please see Attachment B for more details on each species and its habitat requirements.

- Shasta maidenhair fern (*Adiantum shastense*)
- Shasta ageratina (*Ageratina shastensis*)

- Henderson's bent grass (*Agrostis hendersonii*)
- Sanborn's onion (*Allium sanbornii* var. *sanbornii*)
- Slender silver moss (*Anomobryum julaceum*)
- Shasta County arnica (*Arnica venosa*)
- Depauperate milk-vetch (*Astragalus pauperculus*)
- Big-scale balsamroot (*Balsamorhiza macrolepis*)
- Watershield (*Brasenia schreberi*)
- Sulphur Creek brodiaea (*Brodiaea matsonii*)
- Thread-leaved beakseed (*Bulbostylis capillaris*)
- Northern clarkia (*Clarkia borealis* ssp. *borealis*)
- Silky cryptantha (*Cryptantha crinita*)
- Tripod buckwheat (*Eriogonum tripodum*)
- Shield-bracted monkeyflower (*Erythranthe glaucescens*)
- Shasta limestone monkeyflower (*Erythranthe taylorii*)
- Shasta fawn lily (*Erythronium shastense*)
- Boggs Lake hedge-hyssop (*Gratiola heterosepala*)
- Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*)
- Dubious pea (*Lathyrus sulphureus* var. *argillaceus*)
- Legenere (*Legenere limosa*)
- Broad-lobed leptosiphon (*Leptosiphon latisectus*)
- Bellinger's meadowfoam (*Limnanthes floccosa* ssp. *bellingeriana*)
- Woolly meadowfoam (*Limnanthes floccosa* ssp. *floccosa*)

- Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)
- Shasta snow wreath (*Neviusia cliftonii*)
- Slender Orcutt grass (*Orcuttia tenuis*)
- Ahart's paronychia (*Paronychia ahartii*)
- Nuttall's ribbon-leaved pondweed (*Potamogeton epihydrus*)
- Sanford's arrowhead (*Sagittaria sanfordii*)
- Redding checkerbloom (*Sidalcea celata*)
- Maverick clover (*Trifolium piorkowskii*)
- Shasta huckleberry (*Vaccinium shastense* ssp. *shastense*)
- Oval-leaved viburnum (*Viburnum ellipticum*)
- Brazilian watermeal (*Wolffia brasiliensis*)

4.4.2 Invertebrates

A total of 6 special-status invertebrate species have documented occurrences or have potential to occur within the Project Area as presented below. Of the invertebrate species listed, the fairy shrimp, linderiella, and tadpole shrimp species are restricted to vernal pools and wetlands. Valley elderberry longhorn beetles are restricted to their host plant, species of the genus *Sambucus*. Monarch butterflies are not restricted to any particular habitat, but the caterpillars feed on milkweed (*Asclepias* sp.) while adults typically roost in Monterey Pine, Monterey Cypress, and *Eucalyptus* species. Please see Attachment B for more details on each species.

- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- California linderiella (*Linderiella occidentalis*)
- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- Valley elderberry longhorn beetle (*Desmocerus californicus* ssp. *dimorphus*)
- Monarch butterfly (*Danaus plexippus*)

4.4.3 Fish

A total of 14 special-status fish species have documented occurrences or have the potential to occur within the Project Area as presented below. The majority of these fish are anadromous and require, clean, unrestricted flows to complete their life cycle. The mainstem of the Sacramento River provides habitat for many of these species, but floodplains and tributaries to the Sacramento River within the Project Area may also provide habitat for special-status fish species. Please see Attachment A for more details on each species.

- Pacific Lamprey (*Entosphenus tridentatus*)
- River Lamprey (*Lampetra ayresi*)
- Western brook lamprey (*Lampetra richardsoni*)
- Green sturgeon (Southern distinct population segment [DPS]) (*Acipenser medirostris*)
- White sturgeon (*Acipenser transmontanus*)
- Steelhead (CA Central Valley DPS) (*Oncorhynchus mykiss irideus*)
- Chinook salmon (Central Valley spring-run evolutionary significant unit [ESU]) (*Oncorhynchus tshawytscha*)
- Chinook Salmon (Central Valley fall/late-fall-run ESU) (*Oncorhynchus tshawytscha*)
- Chinook salmon (Sacramento River winter-run ESU) (*Oncorhynchus tshawytscha*)
- Central California Roach (*Hesperoleucus symmetricus* ssp. *symmetricus*)
- Sacramento Hitch (*Lavinia exilicauda* ssp. *exilicauda*)
- Hardhead (*Mylopharodon conocephalus*)
- Sacramento splittail (*Pogonichthys macrolepidotus*)
- Riffle Sculpin (*Cottus gulosus*)

4.4.4 Amphibians

A total of 3 special-status amphibian species have documented occurrences or have the potential to occur within the Project Area as presented below. Habitats within the project area that could support special-status amphibians include limestone outcrops within mixed-conifer and hardwood forests, wetlands, vernal pools, grasslands, and riverine habitats. Please see Attachment B for more details on each species.

- Shasta Salamander Complex (*Hydromantes* sp.*)*
- Western spadefoot (*Spea hammondii*)
- Foothill yellow-legged frog (Northwest/North Coast Clade) (*Rana boylii*)

4.4.5 Reptiles

A total of 1 special-status reptile species, the western pond turtle (*Actinemys marmorata*), was identified as having the potential to occur in the Project Area or vicinity (Attachment B). Slow moving portions of the Sacramento River with ample vegetation and basking sites provide habitat for this species. Additionally, lacustrine habitats such as ponds, wetlands, irrigation ditches, and detention basins may provide suitable habitat. Please see Attachment B for more details on this species.

4.4.6 Birds

A total of 15 special-status bird species have documented occurrences or have the potential to occur within the Project Area as presented below. Habitats likely to support special-status birds include riverine habitats along the Sacramento River both with and without emergent vegetation, riparian, oak woodland, chaparral, and urban habitats. Please see Attachment B for more details on each species.

- Clark's grebe (*Aechmophorus clarkii*)
- Great egret (*Ardea alba*)
- Osprey (*Pandion haliaetus*)
- Golden eagle (*Aquila chrysaetos*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Long-eared owl (*Asio otus*)
- Nuttall's woodpecker (*Dryobates nuttallii*)
- Olive-sided flycatcher (*Contopus cooperi*)
- Yellow-billed magpie (*Pica nuttallii*)
- Oak titmouse (*Baeolophus inornatus*)
- Bank swallow (*Riparia riparia*)
- Wrentit (*Chamaea fasciata*)

- California thrasher (*Toxostoma redivivum*)
- Lawrence's goldfinch (*Spinus lawrencei*)
- Tricolored blackbird (*Agelaius tricolor*)

4.4.6.1 Other Protected Birds

In addition to the above-listed special-status birds, all native or naturally occurring birds and their occupied nests/eggs are protected under the California Fish and Game Code and the MBTA. The Project Area supports potential nesting habitat for a variety of common birds protected under these regulations.

4.4.7 Mammals

A total of 10 special-status mammal species have documented occurrences or have the potential to occur within the Project Area as presented below. Many of the special-status bat species can be found in valley riparian forest, oak woodland, or other habitats with large trees for roosting. Habitats with rocky outcrops and urban habitats may also support special-status bat species. Higher elevation habitats such as montane hardwood may support porcupine and fisher. Please see Attachment B for more details on each species.

- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- North American Porcupine (*Erethizon dorsatum*)
- Spotted bat (*Euderma maculatum*)
- Silver-haired bat (*Lasionycteris noctivagans*)
- Western red bat (*Lasiurus blossevillii*)
- Hoary bat (*Lasiurus cinerus*)
- Long-eared myotis (*Myotis evotis*)
- Yuma myotis (*Myotis yumanensis*)
- Fisher (Northern California/Southern Oregon DPS) (*Pekania pennanti*)

4.5 Critical Habitat and Essential Fish Habitat

There is Critical Habitat mapped within the Project Area for slender Orcutt grass, vernal pool fairy shrimp, and vernal pool tadpole shrimp (USFWS 2022). The Project Area also includes Critical Habitat for green sturgeon, Sacramento River winter-run ESU Chinook salmon, Central Valley spring-run ESU Chinook salmon, and California Central Valley DPS steelhead; and Essential Fish Habitat for Chinook salmon (Figure 5) (NOAA 2022c, d). Critical habitat components for each species are listed below.

- Slender Orcutt Grass, Vernal Pool Fairy Shrimp, and Vernal Pool Tadpole Shrimp – vernal pools, seasonal wetlands, and swales
- Green Sturgeon – Sacramento River
- Chinook Salmon (Sacramento River winter-run ESU) – Sacramento River
- Chinook Salmon (Central Valley spring-run ESU) – Churn Creek, Clear Creek, Olney Creek, Sacramento River
- Steelhead (California Central Valley DPS) – Calaboose Creek, Canyon Creek, Churn Creek, Clear Creek, Jenny Creek, Middle Creek, Olney Creek, Rock Creek, Salt Creek, Stillwater Creek, Sulphur Creek, Oregon Gulch,

4.6 Sensitive Natural Communities and Wildlife Corridors

Three sensitive natural communities were identified during the literature review: Great Valley Cottonwood Riparian Forest, Great Valley Valley Oak Riparian Forest, and Great Valley Willow Scrub. These communities are restricted to areas immediately adjacent to the Sacramento River. Figure 5 depicts these sensitive natural communities.

A review of aerial imagery reveals that the three sensitive natural communities found in the Project Area are connected by narrow strips of habitat on the banks of the Sacramento River. Large portions of the Project Area are urban, which effectively fragments the riparian habitat corridor from upland habitats in the surrounding area. Preservation of the remaining riparian areas along the Sacramento River corridor will help preserve these sensitive natural communities and maintain connectivity with natural habitat areas outside the Project Area.

The Sacramento River and associated riparian corridor represents a significant migratory fish and wildlife corridor through the Project Area. Based on CDFW habitat connectivity mapping, the Sacramento River, Churn Creek, and Stillwater Creek are all identified as riparian corridors providing north-south habitat connectivity through the Project Area. Undeveloped open space areas surrounding the city provide terrestrial connectivity.

Map Features

- Sphere of Influence

Essential Fish Habitat (EFH)

- Chinook Salmon

Critical Habitat

- Slender Orcutt Grass
- Vernal Pool Fairy Shrimp
- Vernal Pool Tadpole Shrimp
- Steelhead (California Central Valley DPS)
- Chinook Salmon (Central Valley spring-run ESU)
- Chinook Salmon (Sacramento River winter-run ESU)
- Green Sturgeon (Southern DPS)

Sensitive Natural Communities

- Great Valley Cottonwood Riparian Forest
- Great Valley Valley Oak Riparian Forest
- Great Valley Willow Scrub

CNDDB version June 2022. Please Note: The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

Sources: ESRI, USGS, NOAA, USFWS, NMFS, CDFW, Placeworks



Map Date: 5/8/2023

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Figure 5. Sensitive Natural Communities

2022-059 City of Redding EIR

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5.0 SUMMARY

The Project Area supports 84 special-status species and/or their habitat, including 35 plants, 6 invertebrates, 14 fish, three amphibians, one reptile, 15 birds and 10 mammals. Of those 84 species, 17 are federal or state-listed species (including those proposed or candidates for listing), including three plants, five invertebrates, four fish, one amphibian, and four birds. While not considered special-status as defined in this analysis, many commonly occurring birds that are protected under the MBTA could potentially nest onsite. Finally, Critical Habitat for seven federal or state-listed species occurs within the Project Area, as well as three sensitive natural communities.

Within the Project Area, 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 30 of the special-status species with potential to occur in the Project Area. In addition, aquatic and riparian habitats associated with the river and creeks in the Project Area serve as important wildlife corridors between larger blocks of habitat (Soman et al. 2007). Foothill grasslands and woodlands are also areas of particular concern because they 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.

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LIST OF ATTACHMENTS

Attachment A - Data Base Query Results

Attachment B - Special-Status Species Evaluation

ATTACHMENT A

Data Base Query Results

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Shasta Dam (4012264) OR Project City (4012263) OR Redding (4012254) OR Enterprise (4012253) OR Olinda (4012244) OR Cottonwood (4012243))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Acipenser medirostris pop. 1	green sturgeon - southern DPS	Fish	AFCAA01031	3	1	Threatened	None	G3T1	S1	null	AFS_VU-Vulnerable, IUCN_NT-Near Threatened	Aquatic, Estuary, Marine bay, Sacramento/San Joaquin flowing waters
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	7	None	Threatened	G1G2	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Agrostis hendersonii	Henderson's bent grass	Monocots	PMPOA040K0	26	5	None	None	G2Q	S2	3.2	null	Valley & foothill grassland, Vernal pool, Wetland
Anthicus antiochensis	Antioch Dunes anthicid beetle	Insects	IICOL49020	6	1	None	None	G1	S3	null	null	Interior dunes
Anthicus sacramento	Sacramento anthicid beetle	Insects	IICOL49010	13	1	None	None	G1	S1	null	IUCN_EN-Endangered	Interior dunes
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	1	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Ardea alba	great egret	Birds	ABNGA04040	43	1	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Branchinecta lynchi	vernal pool fairy shrimp	Crustaceans	ICBRA03030	795	8	Threatened	None	G3	S3	null	IUCN_VU-Vulnerable	Valley & foothill grassland, Vernal pool, Wetland
Brodiaea matsonii	Sulphur Creek brodiaea	Monocots	PMLIL0C0H0	2	2	None	None	G1	S1	1B.1	BLM_S-Sensitive, SB_BerrySB-Berry Seed Bank	Cismontane woodland, Meadow & seep
Castilleja rubicundula var. rubicundula	pink creamsacs	Dicots	PDSCR0D482	42	1	None	None	G5T2	S2	1B.2	BLM_S-Sensitive	Chaparral, Cismontane woodland, Meadow & seep, Ultramafic, Valley & foothill grassland
Clarkia borealis ssp. borealis	northern clarkia	Dicots	PDONA05062	131	2	None	None	G4T4	S4	4.3	BLM_S-Sensitive, SB_UCSC-UC Santa Cruz, USFS_S-Sensitive	Chaparral, Cismontane woodland, Lower montane coniferous forest
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	1	None	None	G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special	Broadleaved upland forest, Chaparral,

											Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Cryptantha crinita	silky cryptantha	Dicots	PDBOR0A0Q0	57	13	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland, Valley & foothill grassland
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Insects	IICOL48011	271	4	Threatened	None	G3T2T3	S3	null	null	Riparian scrub
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1404	7	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Great Valley Cottonwood Riparian Forest	Great Valley Cottonwood Riparian Forest	Riparian	CTT61410CA	56	3	None	None	G2	S2.1	null	null	Riparian forest
Great Valley Valley Oak Riparian Forest	Great Valley Valley Oak Riparian Forest	Riparian	CTT61430CA	33	6	None	None	G1	S1.1	null	null	Riparian forest
Great Valley Willow Scrub	Great Valley Willow Scrub	Riparian	CTT63410CA	18	2	None	None	G3	S3.2	null	null	Riparian scrub
Haliaeetus leucocephalus	bald eagle	Birds	ABNKC10010	329	12	Delisted	Endangered	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest, Oldgrowth
Helminthoglypta hertleini	Oregon shoulderband	Mollusks	IMGASC2280	16	2	None	None	G3Q	S1S2	null	null	Riparian forest, Talus slope
Hydromantes shastae	Shasta salamander	Amphibians	AAAAD09030	75	12	None	Threatened	G3	S3	null	BLM_S-Sensitive, IUCN_VU-Vulnerable, USFS_S-Sensitive	Cismontane woodland, Limestone
Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Monocots	PMJUN011L2	62	22	None	None	G2T2	S2	1B.1	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland
Lanx	kneecap lanx	Mollusks	IMGASL7030	55	1	None	None	G2?	S2	null	USFS_S-Sensitive	Aquatic,

patelloides												Sacramento/San Joaquin flowing waters
Lasionycteris noctivagans	silver-haired bat	Mammals	AMACC02010	139	2	None	None	G3G4	S3S4	null	IUCN_LC-Least Concern, WBWG_M-Medium Priority	Lower montane coniferous forest, Oldgrowth, Riparian forest
Lasiurus blossevillii	western red bat	Mammals	AMACC05060	128	1	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland
Lasiurus cinereus	hoary bat	Mammals	AMACC05030	238	1	None	None	G3G4	S4	null	IUCN_LC-Least Concern, WBWG_M-Medium Priority	Broadleaved upland forest, Cismontane woodland, Lower montane coniferous forest, North coast coniferous forest
Lathyrus sulphureus var. argillaceus	dubious pea	Dicots	PDFAB25101	7	1	None	None	G5T1T2Q	S1S2	3	null	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest
Legenere limosa	legenere	Dicots	PDCAM0C010	83	6	None	None	G2	S2	1B.1	BLM_S-Sensitive, SB_UCBG-UC Botanical Garden at Berkeley	Vernal pool, Wetland
Lepidurus packardi	vernal pool tadpole shrimp	Crustaceans	ICBRA10010	329	18	Endangered	None	G4	S3S4	null	IUCN_EN-Endangered	Valley & foothill grassland, Vernal pool, Wetland
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	Dicots	PDLIM02043	54	1	None	None	G4T4	S3	4.2	SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, Cismontane woodland, Valley & foothill grassland, Vernal pool, Wetland
Linderiella occidentalis	California linderiella	Crustaceans	ICBRA06010	508	14	None	None	G2G3	S2S3	null	IUCN_NT-Near Threatened	Vernal pool
Margaritifera falcata	western pearlshell	Mollusks	IMBIV27020	78	1	None	None	G4G5	S1S2	null	null	Aquatic
Monadenia troglodytes wintu	Wintu sideband	Mollusks	IMGASC7092	10	3	None	None	G1G2T1T2	S1S2	null	IUCN_DD-Data Deficient, USFS_S-Sensitive	null
Myotis yumanensis	Yuma myotis	Mammals	AMACC01020	265	1	None	None	G5	S4	null	BLM_S-Sensitive, IUCN_LC-Least Concern, WBWG_LM-Low-Medium Priority	Lower montane coniferous forest, Riparian forest, Riparian woodland, Upper montane coniferous forest
Neviusia cliftonii	Shasta snow-wreath	Dicots	PDROS14020	26	2	None	Candidate Endangered	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Cismontane woodland, Limestone, Lower montane coniferous forest, Riparian woodland
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	Fish	AFCHA0209K	31	3	Threatened	None	G5T2Q	S2	null	AFS_TH-Threatened	Aquatic, Sacramento/San Joaquin flowing waters
Oncorhynchus tshawytscha pop. 11	chinook salmon - Central Valley spring-run ESU	Fish	AFCHA0205L	13	2	Threatened	Threatened	G5T1T2Q	S2	null	AFS_TH-Threatened	Aquatic, Sacramento/San Joaquin flowing waters
Oncorhynchus tshawytscha pop. 7	chinook salmon - Sacramento River winter-run ESU	Fish	AFCHA0205B	2	1	Endangered	Endangered	G5T1Q	S1	null	AFS_EN-Endangered	Aquatic, Sacramento/San Joaquin flowing waters
Orcuttia tenuis	slender Orcutt grass	Monocots	PMPOA4G050	100	8	Threatened	Endangered	G2	S2	1B.1	SB_UCBG-UC Botanical Garden at Berkeley	Vernal pool, Wetland
Pandion haliaetus	osprey	Birds	ABNKC01010	504	3	None	None	G5	S4	null	CDF_S-Sensitive, CDFW_WL-Watch	Riparian forest

											List, IUCN_LC-Least Concern	
Pekania pennanti	Fisher	Mammals	AMAJF01020	555	4	None	None	G5	S2S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	North coast coniferous forest, Oldgrowth, Riparian forest
Rana boylii	foothill yellow-legged frog	Amphibians	AAABH01050	2478	10	None	Endangered	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, USFS_S-Sensitive	Aquatic, Chaparral, Cismontane woodland, Coastal scrub, Klamath/North coast flowing waters, Lower montane coniferous forest, Meadow & seep, Riparian forest, Riparian woodland, Sacramento/San Joaquin flowing waters
Riparia riparia	bank swallow	Birds	ABPAU08010	298	2	None	Threatened	G5	S2	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Riparian scrub, Riparian woodland
Sagittaria sanfordii	Sanford's arrowhead	Monocots	PMALI040Q0	143	1	None	None	G3	S3	1B.2	BLM_S-Sensitive	Marsh & swamp, Wetland
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1422	3	None	None	G2G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Trifolium piorkowskii	maverick clover	Dicots	PDFAB40410	5	1	None	None	G2	S2	1B.2	null	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley & foothill grassland, Vernal pool
Trilobopsis roperi	Shasta chaparral	Mollusks	IMGASA2030	40	6	None	None	G2	S1	null	USFS_S-Sensitive	null
Vaccinium shastense ssp. shastense	Shasta huckleberry	Dicots	PDERI181Z1	21	6	None	None	G4T3	S3	1B.3	BLM_S-Sensitive	Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian forest, Subalpine coniferous forest
Vespericola shasta	Shasta hesperian	Mollusks	IMGASA4070	8	1	None	None	G1	S3	null	USFS_S-Sensitive	Riparian forest

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Project information

NAME

Redding GPU

LOCATION

Shasta County, California



DESCRIPTION

None

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600

(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS

NOT FOR CONSULTATION

Northern Spotted Owl Strix occidentalis caurina — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/1123

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii	Threatened

Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2891

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus	Threatened

Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus	Candidate

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9743

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/7850

Crustaceans

NAME	STATUS

NOT FOR CONSULTATION

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8246

Shasta Crayfish Pacifastacus fortis — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8284

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened
Wherever found
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered
Wherever found
There is **final** critical habitat for this species. Your location overlaps the critical habitat.
https://ecos.fws.gov/ecp/species/2246

Flowering Plants

NAME	STATUS
Slender Orcutt Grass Orcuttia tenuis Wherever found There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Slender Orcutt Grass Orcuttia tenuis https://ecos.fws.gov/ecp/species/1063#crithab	Final
Vernal Pool Fairy Shrimp Branchinecta lynchi https://ecos.fws.gov/ecp/species/498#crithab	Final

NOT FOR CONSULTATION

Vernal Pool Tadpole Shrimp Lepidurus packardi Final
https://ecos.fws.gov/ecp/species/2246#crithab

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE

NOT FOR CONSULTATION

BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Black Swift Cypseloides niger — Breeds Jun 15 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

NOT FOR CONSULTATION

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ( )

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

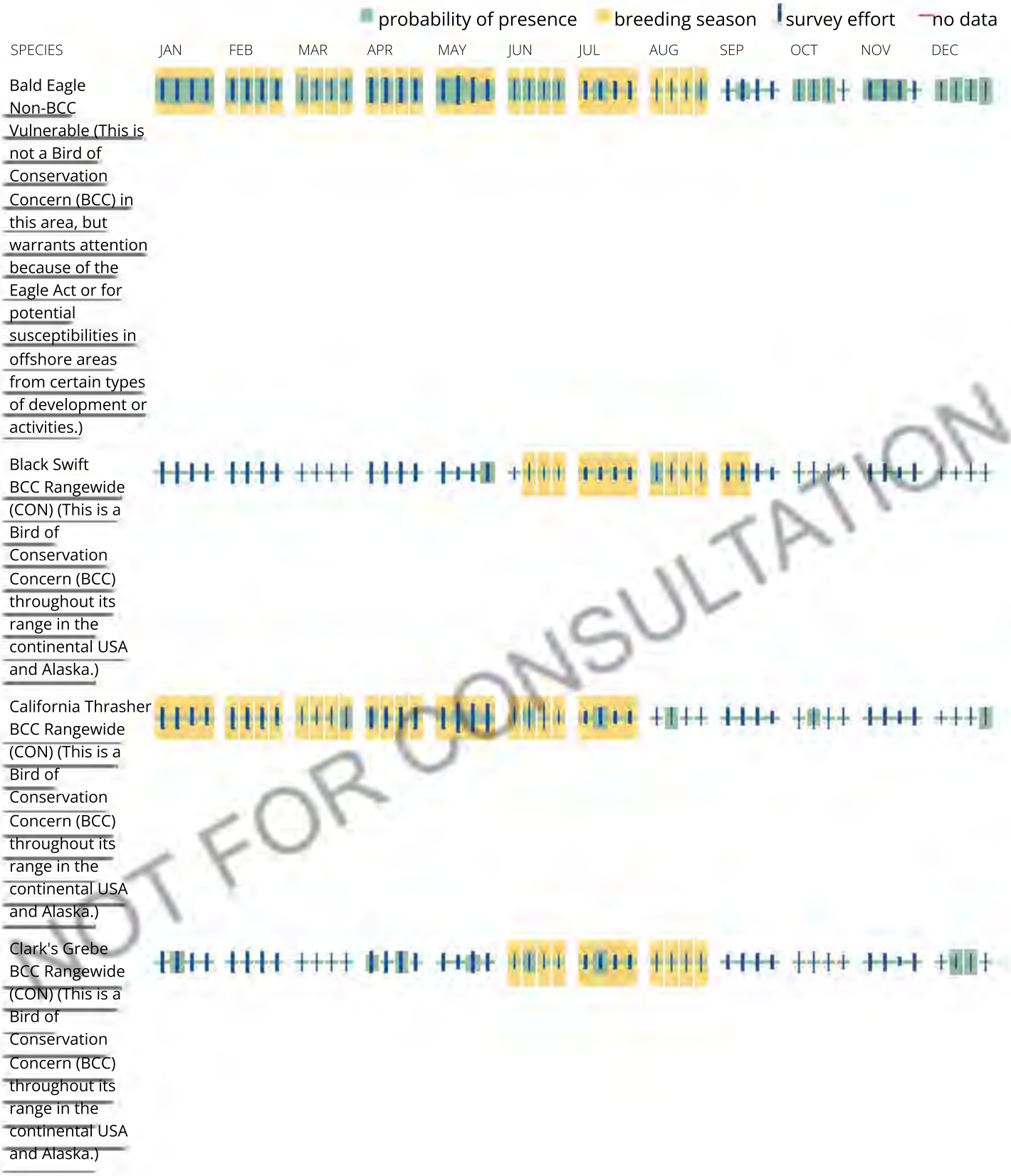
No Data ( )

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

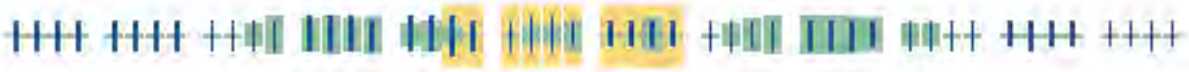
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

NOT FOR CONSULTATION

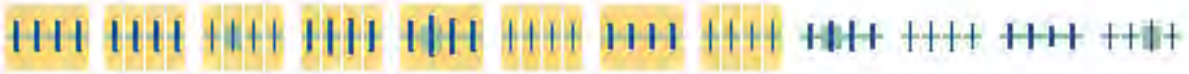


NOT FOR CONSULTATION

Common Yellowthroat BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Lawrence's Goldfinch BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Long-eared Owl BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



NOT FOR CONSULTATION

Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Oak Titmouse BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Olive-sided Flycatcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Short-billed Dowitcher BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



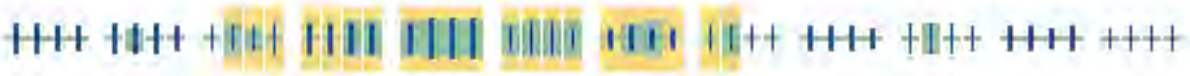
Tricolored Blackbird BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

NOT FOR CONSULTATION

Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



NOT FOR CONSULTATION

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

NOT FOR CONSULTATION

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

NOT FOR CONSULTATION

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

CNPS Rare Plant Inventory

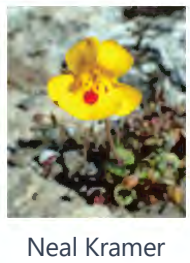
California Native Plant Society

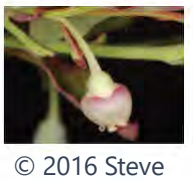
Search Results

26 matches found. Click on scientific name for details

Search Criteria: Quad is one of [**4012264:4012263:4012254:4012253:4012244:4012243**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Adiantum shastense	Shasta maidenhair fern	Pteridaceae	perennial herb	Apr-Aug	None	None	G3	S3	4.3	 ©2015 Julie Kierstead
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2	 ©2005 Steve Matson
Allium sanbornii var. *sanbornii*	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	None	None	G4T3T4	S3S4	4.2	 ©2018 Steven Perry
Arctostaphylos malloryi	Mallory's manzanita	Ericaceae	perennial evergreen shrub	Apr-Jul	None	None	G3	S3	4.3	 ©2009 Timothy D. Ives
Arnica venosa	Shasta County arnica	Asteraceae	perennial rhizomatous herb	May-Jul(Sep)	None	None	G3	S3	4.2	 ©2005 Dean Wm. Taylor
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	 ©2012 Tim Kellison
Brodiaea matsonii	Sulphur Creek brodiaea	Themidaceae	perennial bulbiferous herb	May-Jun	None	None	G1	S1	1B.1	 ©2016 Len Lindstrand III
Bulbostylis capillaris	thread-leaved beakseed	Cyperaceae	annual herb	Jun-Aug	None	None	G5	S3	4.2	 ©2016 Ryan Batten

Castilleja rubicundula var. *rubicundula*	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	None	None	G5T2	S2	1B.2	 ©2010 Vernon Smith
Clarkia borealis ssp. *borealis*	northern clarkia	Onagraceae	annual	Jun-Sep	None	None	G4T4	S4	4.3	 ©2018 Sierra Pacific Industries
Cryptantha crinita	silky cryptantha	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	 ©2009 Sierra Pacific Industries
Eriogonum tripodum	tripod buckwheat	Polygonaceae	perennial deciduous shrub	May-Jul	None	None	G4	S4	4.2	 ©2008 Steven Perry
Erythranthe glaucescens	shield-bracted monkeyflower	Phrymaceae	annual herb	Feb-Aug(Sep)	None	None	G3G4	S3S4	4.3	 Neal Kramer 2020
Iris bracteata	Siskiyou iris	Iridaceae	perennial rhizomatous herb	May-Jun	None	None	G4G5	S3	3.3	 ©2012 Aaron Schusteff
Juncus leiospermus var. *leiospermus*	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	None	None	G2T2	S2	1B.1	 ©2016 Dylan Neubauer
Lathyrus sulphureus var. *argillaceus*	dubious pea	Fabaceae	perennial herb	Apr-May	None	None	G5T1T2Q	S1S2	3	No Photo Available

Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	 ©2000 John Game
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3	 © 2015 Steve Matson
Limnanthes floccosa ssp. *floccosa*	woolly meadowfoam	Limnanthaceae	annual herb	Mar-May(Jun)	None	None	G4T4	S3	4.2	 © 2021 Scot Loring
Neviusia cliftonii	Shasta snow-wreath	Rosaceae	perennial deciduous shrub	Apr-Jun	None	CC	G2	S2	1B.2	 ©2008 Steve Matson
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	FT	CE	G2	S2	1B.1	 © 2013 Justy Leppert
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	 ©2013 Debra L. Cook
Sidalcea celata	Redding checkerbloom	Malvaceae	perennial herb	Apr-Aug	None	None	G2G3	S2S3	3	 ©2014 Lawrence Janeway
Trifolium piorkowskii	maverick clover	Fabaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	 ©2018 Al Keuter
Vaccinium shastense ssp. *shastense*	Shasta huckleberry	Ericaceae	perennial deciduous shrub	(Jun-Sep)Dec-May	None	None	G4T3	S3	1B.3	 © 2016 Steve Matson

Wolffia brasiliensis	Brazilian watermeal	Araceae	perennial herb (aquatic)	Apr-Dec	None	None	G5	S2	2B.3	 © 2021 Scot Loring

Showing 1 to 26 of 26 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 6 April 2022].

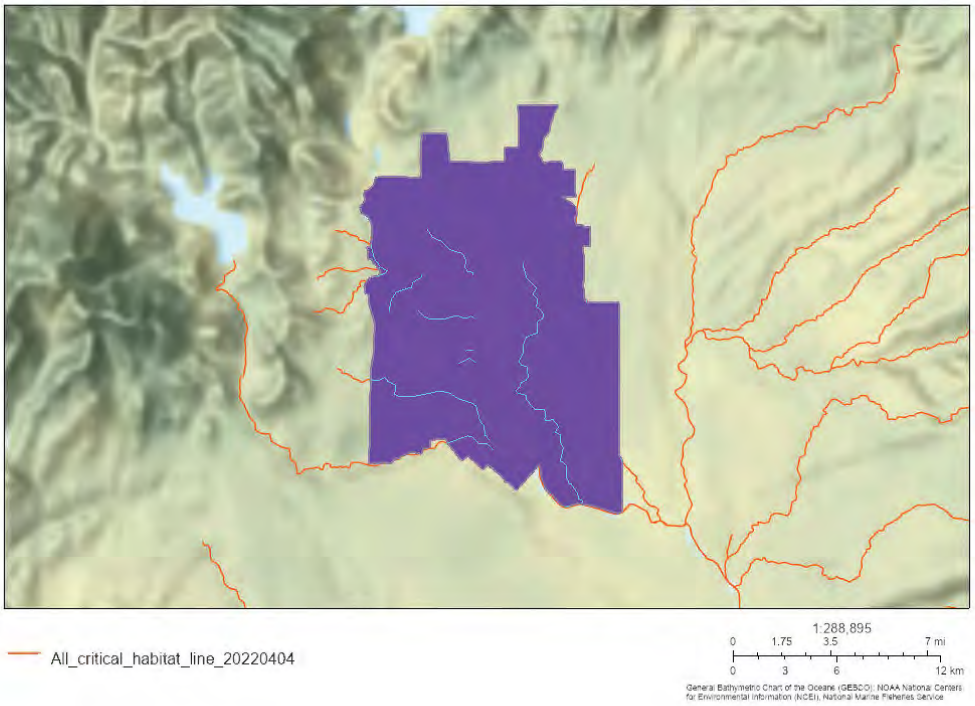
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Critical Habitat Report - Redding SOI

Area of Interest (AOI) Information

Area : 247.81 km²

Jun 16 2022 15:03:39 Pacific Daylight Time



Summary

Name	Count	Area(km²)	Length(m)
All Critical Habitat Polyline	36	N/A	172,224.04
All Critical Habitat Polygon	0	0	N/A

All Critical Habitat Polyline

#	Listed Entity	Common Name	Scientific Name	Length(m)
1	Sturgeon, green [Southern DPS]	Sturgeon, green	Acipenser medirostris	23,613.16
2	Salmon, Chinook [Sacramento River winter-run ESU]	Salmon, Chinook	Oncorhynchus tshawytscha	23,882.51
3	Salmon, Chinook [Central Valley spring-run ESU]	Salmon, Chinook	Oncorhynchus tshawytscha	40,819.68
4	Steelhead [California Central Valley DPS]	Steelhead	Oncorhynchus mykiss	83,908.68

ATTACHMENT B

Special-Status Species Evaluation

Attachment B
Special-Status Species Evaluation

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
Plants						
Shasta maidenhair fern (*Adiantum shastense*)	-	-	4.3	Known only from the Eastern Klamath Range surrounding Shasta Lake, and grows in mesic hardwood-coniferous forests on the forest floor, on limestone and metasedimentary rock outcrops, and rocky road cuts (Huiet et al 2015) (1,085'-5,035')	April-August	Low potential to occur. There are known occurrences in the Shasta Dam quadrangle (CNPS 2022). While the species occurs in higher elevations near Shasta Lake, foothills in the northern portion of the Project may provide marginal potential habitat for this species.
Shasta ageratina (*Ageratina shastensis*)	–	–	1B.2	Rocky and often carbonate soils in chaparral and lower montane coniferous forest (1,310'–5,905').	June–October	Low potential to occur. While the species occurs in higher elevations near Shasta Lake, foothills in the northern portion of the Project may provide marginal potential habitat for this species.
Henderson's bent grass *(Agrostis hendersonii)*	–	–	3.2	Vernal pools and mesic areas in valley and foothill grasslands (230'–1,000').	April–June	Documented Occurrence. There are three CNDDB occurrences within the Project area and three within five miles of the Project area.
Sanborn's onion *(Allium sanbornii* var. *sanbornii)*	–	–	4.2	Chaparral, cismontane woodland, and lower montane coniferous forest, usually with gravelly, serpentinite soils (855'–4,955').	May–September	Low Potential to occur. This species is a strong serpentine indicator (Safford and Miller 2020), and there are no serpentine soils within or near the Project (Jennings 1977; Horton 2017) However, other

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
						soils in the Project provide marginal potential habitat for this species.
Slender silver moss (*Anomobryum julaceum*)	–	–	4.2	Damp rock and soil on outcrops, usually on road cuts in broadleaf upland forest, lower montane coniferous forest, and North Coast coniferous forest (330'–3,280').	Any Season	Potential to occur. There is one CNDDB occurrence within 5 miles of the Project. Rock outcrops in oak woodlands and coniferous forests within the Project provide suitable potential habitat for this species.
Mallory's manzanita (*Arctostaphylos mallory*i)	-	-	4.3	Volcanic substrates in chaparral and lower montane coniferous forest (2,510'-4,200')	April-July	Absent. Project is significantly outside of the known elevational range for this species.
Shasta County arnica (*Arnica venosa*)	-	-	4.2	In disturbed areas and roadcuts in cismontane woodland and lower montane coniferous forest (1,100'-4,890').	May-July	Low potential to occur. Known to occur in the Shasta Dam quadrangle (CNPS 2022). While the Project is lower in elevation than suitable habitat, it may provide marginal potential habitat for this species.
Depauperate milk-vetch (*Astragalus pauperculus*)	-	-	4.3	Occurs within vernally mesic and volcanic soils in chaparral, cismontane woodland, and valley and foothill grasslands (195'-3,985')	March-June	Potential to occur. Volcanic and vernally mesic soils in the Project provide potential habitat.
Big-scale balsamroot *(Balsamorhiza macrolepis)*	–	–	1B.2	Chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentinite soils (150'–5,100').	March–June	Low potential to occur. There are no occurrences in the vicinity; however, Project chaparral, woodlands, and grasslands may provide potential habitat for this species.
Watershield *(Brasenia schreberi)*	–	–	2B.3	Freshwater marshes and swamps (100'–7,220').	June–September	Potential to occur. There is one CNDDB occurrence within 5 miles of the Project. Ponds and slow streams in the

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
						Project may provide potential habitat for this species.
Sulphur Creek brodiaea (*Brodiaea matsonii*)	-	-	1B.1	Occurs within rocky, metamorphic amphibolite schist within cismontane woodland streambanks, and meadows and seeps (640'-722')	May-June	Documented Occurrence. There are two CNDDB occurrences within the Project area.
Thread-leaved beakseed *(Bulbostylis capillaris)*	–	–	4.2	Lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest (1,295'–6,810').	June–August	Low potential to occur. There are known occurrences in the Project area quadrangles (CNPS 2022). Coniferous forests in the northern portion of the Project are lower in elevation than known habitat, but provide marginal potential habitat for this species.
Pink creamsacs *(Castilleja rubicundula* var. *rubicundula)*	–	–	1B.2	Serpentinite substrates in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland (65'–2,985').	April–June	Absent. This species is a strict serpentine endemic (Safford and Miller 2020), and there are no serpentine soils within or near the Project (Jennings 1977; Horton 2017).
Northern clarkia *(Clarkia borealis* ssp. *borealis)*	-	-	1B.3	Chaparral, cismontane, and lower montane coniferous forest, often in road cuts. (1,310'-5,135')	June-September	Low potential to occur. There is one CNDDB occurrence within five miles of the Project area. While the Project is lower in elevation than known habitat, it may provide marginal potential habitat for this species.
Silky cryptantha (*Cryptantha crinita*)	–	–	1B.2	Gravelly streambeds of cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill	April–May	Documented Occurrence. There are two CNDDB occurrences within the Project area and twelve within five miles of the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				grassland habitats (200'–3,985').		
Tripod buckwheat *(Eriogonum tripodum)*	–	–	4.2	Often serpentinite soils of chaparral and cismontane woodland (655'–5,250').	May–July	Low potential to occur. While this species is a broad serpentine endemic (Safford and Miller 2020), there are known occurrences on non-serpentine soils in the Project area quadrangles (CNPS 2022). The Project provides marginal potential habitat for this species.
Shield-bracted monkeyflower (*Erythranthe glaucescens*)	–	–	4.3	Serpentine seeps and sometimes streambanks of chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland (195'–4,070').	February–August	Low potential to occur. The Project is outside of the known range for this species but may provide marginal potential habitat.
Shasta limestone monkeyflower (*Erythranthe taylorii*)	–	–	1B.1	Carbonate crevices and rocky outcrops in cismontane woodland and lower montane coniferous forest (1,165'–3,215').	April–May	Low potential to occur. While the species occurs in higher elevations near Shasta Lake, foothills in the northern portion of the Project may provide marginal potential habitat for this species.
Shasta fawn lily (*Erythronium shastense*)	–	–	1B.2	Rocky, usually carbonate soils in cismontane woodland and lower montane coniferous forest (1,150'–3,345').	March–April	Low potential to occur. While the species occurs in higher elevations near Shasta Lake, foothills in the northern portion of the Project may provide marginal potential habitat for this species.
Boggs Lake hedge-hyssop *(Gratiola heterosepala)*	–	CE	1B.2	Marshes, swamps, lake margins, and vernal pools (35'–7,790').	April–August	Potential to occur. There is one CNDDB occurrence within 5 miles of the Project. Aquatic features may provide potential habitat for this species.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
Siskiyou Iris (*Iris bracteata*)	-	-	3.3	Serpentinite substrates in broadleafed upland forest and lower montane coniferous forest. (590'-3,510').	May-June	Absent. This species is a strict serpentine endemic (Safford and Miller 2020), and there are no serpentine soils within or near the Project (Jennings 1977; Horton 2017)
Red Bluff dwarf rush *(Juncus leiospermus* var. *leiospermus)*	–	–	1B.1	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools (115'–4,100').	March–June	Documented Occurrence. There are fourteen CNDDB occurrences within the Project area and eight within five miles of the Project area.
Dubious pea *(Lathyrus sulphureus* var. *argillaceus)*	–	–	3	Cismontane woodland, lower montane coniferous forest and upper montane coniferous forest (490'–3,050').	April–May	Documented Occurrence. There is one CNDDB occurrence within the Project area.
Legenere *(Legenere limosa)*	–	–	1B.1	Various seasonally inundated areas including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005) (5'–2,885').	April–June	Documented Occurrence. There are three CNDDB occurrences within the Project area and three within five miles of the Project area.
Broad-lobed leptosiphon (*Leptosiphon latisectus*)	–	–	4.3	Broadleafed upland forest and cismontane woodland (560'–4,920').	April–June	Potential to occur. There are known occurrences in the Redding and Shasta Dam quadrangles (CNPS 2022). The Project provides suitable habitat for this species.
Bellinger's meadowfoam (*Limnanthes floccosa* ssp. *bellingeriana*)	–	–	1B.2	Mesic areas in cismontane woodland and meadows and seeps (950'–3,610').	April–June	Low potential to occur. There are no occurrences in the vicinity; however, mesic areas in Project woodlands may provide potential habitat for this species.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
Woolly meadowfoam *(Limnanthes floccosa* ssp. *floccosa)*	–	–	4.2	Vernally mesic chaparral, cismontane woodland, valley and foothill grassland, and vernal pools (195'–4,380').	March–May	Potential to occur. There are two CNDDB occurrences within five miles of the Project area. Vernally mesic areas in the Project may provide potential habitat for this species.
Baker's navarretia *(Navarretia leucocephala* ssp. *bakeri)*	–	–	1B.1	Vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forest, meadows and seeps, and valley and foothill grasslands (15'–5,710').	April–July	Low potential to occur. There are no occurrences in the vicinity; however, mesic areas in Project woodlands, coniferous forests, and grasslands may provide potential habitat for this species.
Shasta snow wreath (*Neviusia cliftonii*)	-	CC	1B.2	Volcanic, sometimes carbonate, and often streambanks of cismontane woodland, lower montane coniferous forest, and riparian woodland. (985' – 1,935')	April-June	Potential to occur. There are two CNDDB occurrences within five miles of the Project area.
Slender Orcutt grass *(Orcuttia tenuis)*	FT	CE	1B.1	Vernal pools, often gravelly (115'–5,774').	May–September	Documented Occurrence. There are five CNDDB occurrences within the Project area and six within five miles of the Project area. There is also critical habitat for this species in the Project (USFWS 2022).
Ahart's paronychia (*Paronychia ahartii*)	–	–	1B.1	Well-drained rocky outcrops, often vernal pool edges, and volcanic upland (Hartman and Rabeler 2012) of cismontane woodland, valley and foothill grassland, and vernal pools (100'–1,675').	February–June	Low potential to occur. There are three CNDDB occurrences within 5 miles of the Project. Rocky areas and vernal pool edges in the Project may provide potential habitat for this species.
Nuttall's ribbon-leaved pondweed *(Potamogeton epihydrus)*	–	–	2B.2	Assorted shallow freshwater marshes and swamps (1,210'–7,125').	July–September	Low potential to occur. There is one CNDDB occurrence within 5 miles of the Project. Aquatic

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
						resources within the Project may provide potential habitat for this species.
Sanford's arrowhead *(Sagittaria sanfordii)*	–	–	1B.2	Shallow marshes and freshwater swamps (0'–2,135').	May–October	Potential to occur. There is one. CNDDB occurrence within five miles of the Project area.
Canyon Creek stonecrop (*Sedum paradisum* ssp. *paradisum*)	–	–	1B.3	Granitic, rocky substrates in broadleafed upland forest, chaparral, lower montane coniferous forest, and subalpine coniferous forest (985'–6,235').	May–June	Absent. There are two CNDDB occurrences within 5 miles of the Project. However, there are no granitic substrates within the Project (Horton 2017).
Redding checkerbloom (*Sidalcea celata*)	–	–	3	Cismontane woodland, sometimes on serpentine substrates (442'–5,004').	April–August	Potential to occur. Cismontane woodland within the Project provides potential habitat for this species.
Maverick clover *(Trifolium piorkowskii)*	-	-	1B.2	Volcanic clay, openings, and often streambanks of chaparral, cismontane woodland, lower montane coniferous forest, mesic valley and foothill grasslands, and vernal pools (525'-2,230').	April–May	Documented Occurrence. There is one CNDDB occurrence within the Project area.
Shasta huckleberry *Vaccinium shastense* ssp. *shastense*	-	-	1B.3	Chaparral, cismontane woodland, lower montane coniferous forest, riparian forest, and subalpine coniferous forest.	December - May	Potential to occur. There are two CNDDB occurrences within five miles of the Project area.
Oval-leaved viburnum *(Viburnum ellipticum)*	–	–	2B.3	Chaparral, cismontane woodland, and lower montane coniferous forest communities (705'–4,595').	May–June	Potential to occur. There are no occurrences in the vicinity; however, Project chaparral, woodlands, and coniferous forests may provide potential habitat for this species.
Brazilian watermeal *(Wolffia brasiliensis)*	–	–	2B.3	Assorted shallow freshwater marshes	April–December	Potential to occur. Suitable habitat present in freshwaters.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				and swamps (66'–328').		
Invertebrates						
Conservancy fairy shrimp (*Branchinecta conservatio)*	FE	-	-	Vernal pools/wetlands.	November-April	Potential to occur. Occurrences are known from the general Project region.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	-	-	Vernal pools/wetlands.	November-April	Documented Occurrence. Critical habitat for this species is present within the Project area. There are four CNDDB occurrences within the Project area and six within 5 miles of the Project area.
California linderiella (*Linderiella occidentalis*)	-	-	CNDDB	Vernal pools/wetlands.	November-April	Documented Occurrence. There are thirteen CNDDB occurrences within the Project area and one occurrence within five miles of the Project area.
Vernal pool tadpole shrimp (*Lepidurus packardi*)	FE	-	-	Vernal pools/wetlands.	November-April	Documented Occurrence. Critical habitat for this species is present within the Project area. There are 14 CNDDB occurrences within the Project area and 8 within 5 miles of the Project area.
Shasta Crayfish (*Pacifastacus fortis*)	FE	CE		Prefers rocky, gravelly bottoms, usually volcanic rubble. Cool, clear, spring-fed lakes, rivers and streams, usually at or near a spring inflow source, where water temperatures remain stable. Known from Pit River and Hat Creek and Fall River Watersheds.		Absent. Outside of known geographic range.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	-	-	Elderberry shrubs.	Any season	Documented Occurrence. There are two CNDDB occurrences within the Project area and two within 5 miles of the Project area.
Monarch butterfly (*Danaus plexippus*)	FC	-	-	Adult monarchs west of the Rocky Mountains typically overwinter in sheltered wooded groves of Monterey pine, Monterey cypress, and gum eucalyptus along coastal California, then disperse in spring throughout California, Nevada, Arizona, and parts of Oregon and Washington. Adults require milkweed and additional nectar sources during the breeding season. Larval caterpillars feed exclusively on milkweed.	Any season	Potential to occur. The Project area is near a migration route for the species.
Fish						
Pacific lamprey (*Entosphenus tridentatus*)	-	-	CDFW SSC	Anadromous; undammed streams rivers, streams, and creeks with gravel spawning substrates.		Potential to occur. Suitable habitat occurs within the Sacramento River.
River lamprey (*Lampetra ayresi*)			CDFW SSC	Clean, gravelly riffles in permanent streams for spawning, while ammocoetes require sandy to silty backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 25°C (Moyle et al. 2015).		Potential to occur. Suitable habitat occurs within the Sacramento River.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
Western brook lamprey (*Lampetra richardsoni*)	-	-	CDFW SSC	Clear, cold, water in little disturbed watersheds, as well as clean gravel near cover (boulders, riparian vegetation, logs, etc.) for spawning. Additional habitat requirements include areas with low flow velocities and fine sediments for rearing that are not excessively scoured under high flows (Moyle et al. 2015).		Potential to occur. Suitable habitat occurs within the Sacramento River.
Green sturgeon Southern DPS (*Acipenser medirostris*)	FT	--	CDFW SSC	Anadromous; undammed cold-water rivers having relatively deep pools with large substrates.	N/A	Documented Occurrence. Suitable habitat occurs within the Sacramento River. There is one CNDDB occurrence within the Project area.
White sturgeon (*Acipenser transmontanus*)	-	-	CDFW SSC	Estuaries of large rivers; moves far up inland to spawn (Page and Burr 2011).		Documented Occurrence. Suitable habitat occurs within the Sacramento River and individuals are documented in the Sacramento River almost every year (CDFW 2022a).
Steelhead (CA Central Valley DPS) (*Oncorhynchus mykiss irideus*)	FT	-	-	Fast-flowing, well-oxygenated rivers and streams	N/A	Documented Occurrence. Suitable habitat occurs within the Sacramento River. There are two mapped CNDDB occurrences within the Project area and two within five miles of the Project area.
Chinook salmon (Central Valley spring-run ESU) (*Oncorhynchus tshawytscha*)	FT	CT	-	Undammed rivers, streams, creeks.	N/A	Documented Occurrence. Suitable habitat occurs within the Sacramento River. There are two CNDDB occurrences with the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
Chinook salmon (Central Valley fall/late-fall-run ESU) (*Oncorhynchus tshawytscha*)	-	-	CDFW SSC	Undammed rivers, streams, creeks.	N/A	Potential to occur. Suitable habitat occurs within the Sacramento River.
Chinook salmon (Sacramento River winter-run ESU) *(Oncorhynchus tshawytscha)*	FE	CE	-	Undammed rivers, streams, creeks.	N/A	Documented Occurrence. Suitable habitat occurs within the Sacramento River. There is one CNDDB occurrence within the Project area.
Delta smelt (*Hypomesus transpacificus*)	FT	CE	-	Sacramento-San Joaquin delta.	N/A	Absent. Out of range.
Central California roach (*Hesperoleucus symmetricus symmetricus*)	-	-	CDFW SSC	Small streams, intermittent watercourses; mid-elevation streams in the Sierra Nevada foothills and in lower reaches of some San Francisco Bay streams but they may also be found in the main channels of some rivers (Moyle et al. 2015).		Potential to occur. Suitable habitat occurs within the Sacramento River.
Sacramento hitch (*Lavinia exilicauda exilicauda*)	-	-	CDFW SSC	Warm, lowland, waters including clear streams, turbid sloughs, lakes and reservoirs. In streams they are generally found in pools or runs among aquatic vegetation, although small individuals will also use riffles. Sacramento hitch prefer shallow (< 1 m deep) stream habitats with smaller gravel to mud substrates.		Low potential to occur. Suitable habitat occurs within the Sacramento River.
Hardhead	-	-	CDFW SSC	Relatively undisturbed streams at low to mid		Potential to occur. Suitable habitat occurs

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
(*Mylopharodon conocephalus*)				elevations in the Sacramento-San Joaquin and Russian River drainages. In the San Joaquin River, scattered populations found in tributary streams, but only rarely in the valley reaches of the San Joaquin River.		within the Sacramento River.
Sacramento splittail (*Pogonichthys macrolepidotus*)	-	-	CDFW SSC	San Francisco bay estuary. Spawns in upstream floodplains and backwater sloughs.		Potential to occur. Suitable habitat occurs within the Sacramento River.
Riffle sculpin (*Cottus gulosus*)	-	-	CDFW SSC	Permanent, cool, headwater streams where riffles and rocky substrates predominate (Moyle et al. 2015).		Potential to occur. Suitable habitat occurs within the Sacramento River.
Amphibians						
Shasta salamander Complex (*Hydromantes sp.*)	--	CT		Found in moist caves, rock cracks. cliff faces, and vertical cavern walls associated with limestone outcrops in mixed Douglas fir (Pseudotsuga menziesii), pine (Pinus), and oak (Quercus) forests.	Spring	Low potential to occur onsite. Suitable habitat occurs within the Project Area. There are eleven CNDDB occurrences within 5 miles of the Project area.
Western spadefoot (*Spea hammondii*)	-	-	CDFW SSC	California endemic species of vernal pools, swales, wetlands and adjacent grasslands throughout the Central Valley.	March-May	Potential to occur. Suitable habitat occurs within the Project Area. There are five CNDDB occurrences within five miles of the Project area.
Foothill yellow-legged frog Northwest/North Coast Clade (*Rana boylii*)	-	--	CDFW SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill	May – October	Documented Occurrence. Suitable habitat occurs within the Project Area. There are two CNDDB occurrences within the Project area and eleven records

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed. Colusa, Del Norte, Glenn, Humboldt, Lake, Marin, Mendocino, Napa, Shasta, Solano, Sonoma, Tehama, Trinity, and Yolo counties. Portions of Butte, Lassen, Modoc, and Siskiyou counties. Applegate, Big-Chico Creek-Sacramento, Lower Klamath, Lower Pit, McCloud, Sacramento Headwaters, Salmon, Scott, Shasta, and Upper Klamath watershed sub-basins.		within five miles of the Project area.
California red-legged frog (*Rana draytonii*)	FT	-	CDFW SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1-November 1	Absent. Outside of known range for species.
Reptiles						
Northwestern pond turtle (*Actinemys marmorata*)	-	-	CDFW SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Documented Occurrence. Suitable habitat occurs within the Project Area. There are two CNDDB records within the Project Area and eight within five miles of the Project area.
Birds						
Clark's grebe *(Aechmophorus clarkii)*	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered	June-August (breeding)	Potential to occur. Suitable foraging habitat (slower areas of the

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				seacoasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation.		Sacramento River) occurs in the Project area. However, there is limited, if any, breeding habitat within the Project area.
Black swift *(Cypseloides niger)*	-	-	BCC, SSC	In California, nests from Cascade-Sierra Nevada region south to Tulare and Mono counties; coastal ranges (Santa Cruz south to San Luis Obispo counties), San Gabriel, San Bernardino, and San Jacinto Mountains. Nests on ledges or shallow caves on steep rock faces, usually behind waterfalls. Winter range, unknown, but thought to be northern and western South America, and West Indies.	May-September	Absent. There is no suitable nesting habitat in the Project area.
Short-billed dowitcher *(Limnodromus griseus)*	-	-	BCC	Nests in Canada, southern Alaska; winters in coastal California south to South America; wintering habitat includes coastal mudflats and brackish lagoons	Wintering/ migrant period: late-August-May	Absent. This species does not nest or overwinter in the vicinity of the Project area.
Willet (*Tringa semipalmata*)	-	-	BCC	Breeds locally in interior of western North America. In California, breeding range includes the Klamath Basin and Modoc Plateau and portions of Mono and	April-August	Absent. This species does not nest or overwinter in the vicinity of the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				possibly Inyo counties. Breeding habitat includes prairies, wetlands and grasslands on semiarid plains, and uplands near brackish or saline wetlands; prefers temporary, seasonal, and alkali wetlands over semipermanent and permanent wetlands.		
Great egret *(Ardea alba)*	-	-	CNDDB	Colonial nester; nests in woody vegetation, shrubs and trees usually near lakes, ponds, marshes, estuaries, human-made impoundments, or natural and human-made islands.	March-July	Documented Occurrence. There is one CNDDB occurrence within the Project area. Suitable nesting and foraging habitat occurs within the Project area.
Osprey *(Pandion haliaetus)*	-	-	CDFW WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. Nests in large trees, snags, cliffs, transmission/ communication towers, artificial nest platforms, channel markers/buoys.	April-September	Documented Occurrence. There is one CNDDB occurrence within the Project area and four within five miles of the Project area. Suitable nesting and foraging habitat occurs within the Project area.
Golden eagle (*Aquila chrysaetos*)	-	-	BCC, CFP	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/ savannah, and chaparral. Nesting occurs on cliff ledges, riverbanks, trees, and human-made structures (e.g.,	February-August (nesting); October-February (wintering in Central Valley)	Potential to occur. Suitable nesting and foraging habitat occurs within the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during winter.		
Bald eagle (*Haliaeetus leucocephalus*)	Delisted	CE	CFP	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands.	February – September (nesting); October-March (wintering)	Documented Occurrence. There are 3 CNDDB occurrences within the Project area and six within five miles of the Project area (CDFW 2022b).
Northern spotted owl *(Strix occidentalis caurina)*	FT	CT	-	Found from Marin County through coastal ranges north to British Columbia; breeds in old growth mature forest. They use forests with greater complexity and structure.	March-June	Absent. There is no suitable habitat in the Project area.
Long-eared owl *(Asio otus)*	-	-	BCC, SSC	Nests in open forests, riparian woodland, conifer forests, dense vegetation adjacent to grasslands, shrublands or other open communities.	March-August (breeding); November-March (wintering in Central Valley)	Potential to occur. Suitable nesting habitat occurs in the Project area.
Nuttall's woodpecker *(Dryobates nuttallii)*	-	-	BCC	Resident from northern California south to Baja California. Nests in	April-July	Potential to occur. Suitable nesting habitat occurs within the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				tree cavities in oak woodlands and riparian woodlands.		
Olive-sided flycatcher *(Contopus cooperi)*	-	-	BCC, SSC	Nests in montane and northern coniferous forests, in forest openings, forest edges, semiopen forest stands. In California, nests in coastal forests, Cascade and Sierra Nevada region. Winters in Central to South America.	May-August	Potential to occur. Suitable nesting habitat occurs within the Project area.
Yellow-billed magpie (*Pica nuttallii*)	-	-	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large expanses of open ground; also found in urban parklike settings.	April-June	Potential to occur. Suitable nesting habitat occurs within the Project area.
Oak titmouse (*Baeolophus inornatus*)			BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree).	March-July	Potential to occur. Suitable nesting habitat occurs within the Project area.
Bank swallow (*Riparia riparia*)	-	CT	-	Nests colonially along coasts, rivers, streams, lakes, reservoirs, and wetlands in vertical banks, cliffs, and bluffs in alluvial, friable soils. May also nest in sand, gravel quarries and road cuts. In California, breeding range includes	May-July	Documented Occurrence. There is one CNDDB occurrence within the Project area and two within five miles of the Project area (CDFW 2022).

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				northern and central California.		
Wrentit (*Chamaea fasciata*)	-	-	BCC	Coastal sage scrub, northern coastal scrub, chaparral, dense understory of riparian woodlands, riparian scrub, coyote brush and blackberry thickets, and dense thickets in suburban parks and gardens.	March-August	Potential to occur. Suitable nesting habitat occurs within the Project area.
California thrasher (*Toxostoma redivivum*)	-	-	BCC	Resident and endemic to coastal and Sierra Nevada-Cascade foothill areas of California. Nests are usually well hidden in dense shrubs, including scrub oak, California lilac, and chamise.	February-July	Potential to occur. Suitable nesting habitat occurs within the Project area.
Lawrence's goldfinch (*Spinus lawrencei*)	-	-	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, and tall annual weed fields, with a water source (e.g., small stream, pond, lake); to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches	March-September	Potential to occur. Suitable nesting habitat occurs within the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				or rural residences near weedy fields and water.		
Tricolored blackbird (*Agelaius tricolor*)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta Counties south to San Bernardino, Riverside and San Diego Counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen Counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Documented Occurrence. There are two CNDDB occurrences within the Project Area and seven within five miles of the Project area (CDFW 2022).
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent. This species breeds in coastal habitats and does not occur in the vicinity of the Project area.
Mammals						
Pallid bat *(Antrozous pallidus)*	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns,	April-September	Potential to occur. Suitable habitat occurs within the Project area. There are two CNDDB occurrences within five miles of the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				porches, bat boxes, and human-occupied as well as vacant buildings (WBWG 2020).		
Townsend's big-eared bat *(Corynorhinus townsendii)*	-	-	CDFW SSC	Caves, mines, buildings, rock crevices, trees.	April-September	Low potential to occur. Suitable habitat occurs within the Project area. There are two CNDDB occurrences within five miles of the Project area.
North American porcupine (*Erethizon dorsatum*)	-	-	-	Deciduous and coniferous forest, occasionally brushy areas or stands of acacia along washes in desert (Reid 2006). Most common in montane conifer and wet meadow habitats (CDFW 2022).	Any season	Low potential to occur. There is one CNDDB occurrence within five miles of the Project area.
Spotted bat *(Euderma maculatum)*	-	-	CDFW SSC	Roost in cracks, crevices, and caves, usually high in fractured rock cliffs. Found in desert, sub-alpine meadows, desert-scrub, pinyon-juniper woodland, ponderosa pine, mixed conifer forest, canyon bottoms, rims of cliffs, riparian areas, fields, and open pastures (WBWG 2020).	April-September	Low potential to occur. There is one CNDDB occurrence within five miles of the Project area.
Silver-haired bat (*Lasionycteris noctivagans*)	-	-	WBWG - M	Maternity roosts occur in natural hollows and bird-excavated cavities or under loose bark of larger snags. May hibernate in trees, rock crevices, sloughing bark, or in wood piles, mines, caves, or buildings. Prefers forest, north temperate zone	April-September	Documented Occurrence. There is one CNDDB occurrence within the Project area and three within five miles of the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				conifer and mixed conifer/hardwood forests, but may occur in more xeric habitats in winter and during migration (WBWG 2020).		
Western red bat (*Lasiurus blossevillii*)	-	-	CDFW SSC	Roosts in foliage of trees or shrubs; day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores) (WBWG 2020).	April-September	Potential to occur. Suitable habitat occurs within the Project area. There are three CNDDB occurrences within five miles of the Project area.
Hoary bat (*Lasiurus cinerus*)	-	-	CDFW SSC	Dense foliage of medium to large trees; roost primarily in foliage of both coniferous and deciduous trees. Roosts are usually at the edge of a clearing. Some unusual roosting situations have been reported in caves, beneath a rock ledge, in a woodpecker hole, in a grey squirrel nest, under a driftwood plank, and clinging to the side of a building (WBWG 2020).	April-September	Potential to occur. Suitable habitat occurs within the Project area. There is one CNDDB occurrence within five miles of the Project area.
Long-eared myotis *(Myotis evotis)*	-	-	-	Occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but is usually associated with coniferous forests. Roosts under	April-September	Potential to occur. Suitable habitat occurs within the Project area. There is one CNDDB occurrence within five miles of the Project area.

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			
				exfoliating tree bark, in hollow trees, caves, mines, cliff crevices, sinkholes, and rocky outcrops on the ground; sometimes roost in buildings and under bridges (WBWG 2020).		
Yuma myotis (*Myotis yumanensis)*	-	-	-	Usually associated with permanent sources of water, typically rivers and streams; occurs in riparian, arid scrublands and deserts, and forests; roosts in bridges, buildings, cliff crevices, caves, mines, and trees (WBWG 2020).	April-September	Potential to occur. Suitable habitat occurs within the Project area. There are three CNDDB occurrences within five miles of the Project area.
Fisher - Northern California/Southern Oregon DPS *(Pekania pennanti)*	-	-	CDFW SSC	Coastal northern California and includes reintroduced populations in the northern Sierra Nevada and southern Oregon Cascades.	Any season	Very low potential to occur. Suitable habitat occurs in the extreme northwestern portion of the Project area. There are five CNDDB occurrences within five miles of the Project area.

Status Codes:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered
FT	FESA listed, Threatened
FC	Candidate for FESA listing as Threatened or Endangered
BCC	USFWS Bird of Conservation Concern (USFWS 2021)
CT	CESA- or NPPA-listed, Threatened
CC	Candidate for CESA listing as Endangered or Threatened
CE	CESA or NPPA listed, Endangered
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians)
CDFW WL	CDFW Watch List
NPPA	California Native Plant Protection Act
SSC	CDFW Species of Special Concern (CDFW 2021)
CNDDB	Species that is tracked by CDFW's CNDDB but does not have any of the above special-status designations otherwise
1B	CRPR/Rare or Endangered in California and elsewhere

Common Name (*Scientific Name*)	Status			Habitat Description	Survey Period	Potential To Occur Onsite
	ESA	CESA/ NPPA	Other			

2B	Plants rare, threatened, or endangered in California but more common elsewhere
3	CRPR/Plants About Which More Information is Needed – A Review List
4	CRPR/Plants of Limited Distribution – A Watch List
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)
Delisted	Formally Delisted (delisted species are monitored for 5 years)

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Appendices

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Appendix 5.5-1 Cultural Resources Inventory Report

1.0 CULTURAL RESOURCES

1.1 Regulatory Setting

1.1.1 National Historic Preservation Act

The federal law that covers cultural resources that could be affected by federal undertakings is the National Historic Preservation Act (NHPA) of 1966, as amended. Section 106 of the NHPA requires that federal agencies take into account the effects of a federal undertaking on properties listed in or eligible for the National Register of Historic Places (NRHP). The agencies must afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the undertaking. A federal undertaking is defined in 36 Code of Federal Regulations (CFR) 800.16(y) as:

> "A federal undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval."

The regulations that stipulate the procedures for complying with Section 106 are in 36 CFR 800. The Section 106 regulations require:

- definition of an Area of Potential Effect (APE);
- identification of cultural resources within the APE;
- evaluation of the identified resources in the APE using NRHP eligibility criteria;
- determination of whether the effects of the undertaking or project on eligible resources will be adverse; and
- agreement on and implementation of efforts to resolve adverse effects, if necessary.

The federal agency must seek comment from the State Historic Preservation Officer (SHPO) and, in some cases, the ACHP, for its determinations of eligibility, effects, and proposed mitigation measures. Section 106 procedures for a specific project can be modified by negotiation of a Memorandum of Agreement or Programmatic Agreement between the federal agency, the SHPO, and, in some cases, the project proponent.

Effects to a cultural resource are potentially adverse if the lead federal agency, with the SHPO's concurrence, determines the resource eligible for the NRHP, making it a Historic Property, and if application of the Criteria of Adverse Effects (36 CFR 800.5[a][2] et seq.) results in the conclusion that the effects will be adverse. The NRHP eligibility criteria, contained in 36 CFR 63, are as follows:

> "The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess aspects of integrity of location, design, setting, materials, workmanship, feeling, association, and

(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) that are associated with the lives of persons significant in our past; or

(c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) that have yielded, or may be likely to yield, information important in prehistory or history.

In addition, the resource must be at least 50 years old, barring exceptional circumstances (36 CFR 60.4). Resources that are eligible for, or listed on, the NRHP are *historic properties*.

Regulations implementing Section 106 of the NHPA (36 CFR 800.5) require that the federal agency, in consultation with the SHPO, apply the Criteria of Adverse Effect to historic properties within the APE. According to 36 CFR 800.5(a)(1):

"An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association."

1.1.2 California Environmental Quality Act

The California Environmental Quality Act (CEQA) is the state law that applies to a project's impacts on cultural resources. A project is an activity that may cause a direct or indirect physical change in the environment and that is undertaken or funded by a state or local agency, or requires a permit, license, or lease from a state or local agency. CEQA requires that impacts to Historical Resources be identified and, if the impacts will be significant, then apply mitigation measures to reduce the impacts.

A Historical Resource is a resource that 1) is listed in or has been determined eligible for listing in the California Register of Historical Resources (CRHR) by the State Historical Resources Commission, or has been determined historically significant by the CEQA lead agency because it meets the eligibility criteria for the CRHR; 2) is included in a local register of historical resources, as defined in Public Resources Code (PRC) 5020.1(k); or 3), and has been identified as significant in a historical resources survey, as defined in PRC 5024.1(g) (California Code of Regulations [CCR] Title 14, Section 15064.5(a)).

The eligibility criteria for the CRHR are as follows (CCR Title 14, Section 4852(b)):

(1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the U.S.;

(2) It is associated with the lives of persons important to local, California, or national history;

(3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or

(4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition, the resource must retain integrity, which is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association (CCR Title 14, Section 4852(c)). Resources that have been determined eligible for the NRHP are automatically eligible for the CRHR.

Impacts to a Historical Resource, as defined by CEQA (listed in an official historic inventory or survey or eligible for the CRHR), are significant if the resource is demolished or destroyed or if the characteristics that made the resource eligible are materially impaired (CCR Title 14, Section 15064.5(b)). Demolition or alteration of eligible buildings, structures, and features that they would no longer be eligible would result in a significant impact. Whole or partial destruction of eligible archaeological sites would result in a significant impact. In addition to impacts from construction resulting in destruction or physical alteration of an eligible resource, impacts to the integrity of setting (sometimes termed *visual impacts*) of physical features in the Project Area could also result in significant impacts.

1.1.3 Public Resource Code 21073 and 21074

PRCs 21073 and 21074 define a California Native American tribe and tribal cultural resource, respectively. PRC 21073 defines a "California Native American tribe" as a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission (NAHC).

Tribal Cultural Resources (TCRs) are defined in Section 21074 of the California PRC as sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either included in or determined to be eligible for inclusion in the CRHR, or are included in a local register of historical resources as defined in subdivision (k) of Section 5020.1, or are a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

1.1.4 California State Assembly Bill 52

Assembly Bill 52, Section 1(b)(4) established that a project that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment. A lead agency must begin consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project if the tribe requests to be informed of projects prior to the determination of a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report ,or if the tribe responds within 30 days of formal notification. Only California Native American tribes, as defined in Section 21073 of the California PRC, are experts in the identification of TCRs and impacts thereto. If the lead agency determines that a tribal cultural resource is present in a project area and mitigation measures are not otherwise specified by the tribe, the lead agency may use the following to avoid impacts to the TCR:

- Avoid damaging effects to any tribal cultural resource;
- Protect the cultural character and integrity of the resource;
- Protect the traditional use of the resource;

- Protect the confidentiality of the resource; and
- Development of permanent conservation easements or other cultural appropriate management plans

1.1.5 California Senate Bill 18

California Senate Bill 18 (SB 18) requires any state agency to consult with California Native American tribes for the preservation of or mitigation of impacts to specified Native American places, prior to the adoption or amendment of a city or county general plan. It also specifies that consultation with California Native American tribes is required for the purposes of preserving specified places, features, and objects that are located within a cities or counties jurisdiction.

The goal of SB 18 is to recognize that pre-contact, archaeological, cultural, spiritual, and ceremonial places are essential elements of Native American culture and to establish meaningful government-to-government consultations early in the planning process to identify, consider, and preserve these places. The legislation enables California Native American tribes to manage and act as caretakers of California Native American prehistoric, archaeological, cultural, spiritual, and ceremonial places. Local governments are encouraged to consider the preservation and cultural aspects of these places.

1.2 State Laws Pertaining to Human Remains

Section 7050.5 of the California Health and Safety Code requires that all work in the vicinity of the find stop until the county coroner determines if the remains are Native American and not the result of a crime scene. If the remains are determined to be Native American, the coroner must notify the NAHC within 24 hours. The NAHC will designate a Most Likely Descendent. Section 5097.94 provides additional guidance if human remains are identified during the course of a project.

2.0 CONTEXT

2.1 Ethnographic

The project area is located in a region known to have been occupied by the Wintu Indians. Wintu territory encompassed portions of present-day Trinity, Tehama, Shasta, and Siskiyou counties. The territory is bounded in the southeast by the South Fork Trinity River, in the southwest by Beegum and Little Cow creeks, and in the north by Mount Shasta. There are nine distinct Wintu Indian groups: *Nomti-pom, Wenemem, Dawpom, Elpom, λ'abal-pom, Nomsu's, Dawnom, Norelmaq*, and *Norelmaq*. The Wintu language is in the Penutian language family and is part of the Wintuan language group that includes the Wintu, the Nomlaki, and the Patwin (Heizer 1978).

The Wintu hunted deer, brown bears, quails, rabbits, rats, squirrels and birds. They mostly fished Chinook salmon and steelhead, but also collected suckers, mussels, and clams. The family units would collect acorns, buckeye, manzanita berries, Indian potatoes, *Calochortus* sp. (pussy's ears), snake's head, clover, miner's lettuce, skunkbush, hazel nuts, pine nuts, and wild grapes. The Wintu would also cultivate many plants for medicine, such as pennyroyal, Oregon grape, soaproot, milkweed, and salt (Heizer 1978).

Village structures included bark houses, steam houses, menstrual huts, and earthen lodge. The bark houses were the family unit's main shelter. Bark houses were conical and made of poles lashed together and covered in bark or branches of evergreen. Steam houses and menstrual huts were domed brush shelters. The semi-subterranean earth lodges were the largest structures, ranging from 15 to 20 feet in diameter with a center pole. Earthen lodges were used by men for gatherings, sweating, shaman initiation, and for single men to sleep in during the winter months. (Heizer 1978).

The family unit was the basic organization unit and the village served as the focus of social, political, and economic organization. The position of chief was hereditary, passing from father to eldest son; however, it was necessary that the son be deemed worthy by the villagers. The Wintu were generally known to be a peaceful people, but they did engage in warfare. Wintu wars were typically the result of feuds between individuals or neighboring groups, and these conflicts were generally limited in their scope and severity by strong bonds of kinship. Weapons used included bows and arrows, clubs, thrusting spears, daggers and slings. Wintu funerary practices required an individual to be buried the same day they died, or as soon as their relatives arrived. Individuals were buried in a crouched position, with their elbows placed between their knees and their hands placed on their cheeks. They were then bundled in a deer or bearskin and buried. Funerary objects included personal effects of the deceased, the deceased's dog, and a basket of acorn meal water (Heizer 1978).

Today, the Wintu practice aspects of and value their traditional culture. They are extremely outspoken about the protection of areas important to the tribe, as destruction of these places negatively affect emotional health of tribal members. In addition, tribal reorganization and recognition are important issues, which remain at the forefront (LaPena 2014:696-7).

2.1.1 Pre-Contact

The Wintu population prior to contact with Europeans is estimated to have been over 14,000. A malaria epidemic swept through the Central and Upper Sacramento Valley in 1830-1833, killing off 75 percent of the Indigenous population and severely hindering the ability of the Wintu to resist incursions into their territory by settlers. As settlers moved into the region, the Wintu faced the destruction of vital resources by livestock, the pollution of fishing areas by gold miners, and violent conflict with settlers. These factors further diminished the Wintu population, and by 1910 the Wintu population is estimated to have been approximately 395 individuals. Shasta Dam and others were constructed in the 20th century, which dispersed many of the surviving of Wintu, as much of their habitable land was inundated (Heizer 1978). The Wintu population was identified as approximately 2,244 in the 1990 census (LaPena 1994:696).

2.1.2 Historic Initial Contact and Early Settlement

Although Russian and Spanish explorers were said to have travelled through the area as early as 1815, the earliest documented European-American presence in the area was related to fur trapping by the Hudson Bay Company. Seeking beaver pelts, which commanded top dollar, the trappers established and mapped the first European-American trails into Shasta County (Smith 2009). Don Luis Arguello travelled up the Sacramento River in 1921 nearly as far as what is now known as Redding (Bunse and Wee 2020:59). Peter

Skene Ogden (who is believed to have named Mount Shasta) and Jedediah Strong Smith travelled up the Sacramento Valley and into Oregon in 1827 and 1828, via the Pacific Coast.

European-American settlement in the northern Sacramento Valley began in large part with the acquisition and development of Rancho Buenaventura. Mexican Governor Manuel Micheltorena gave this land grant to Major Person Barton Reading in 1844, who received a patent for the land from the U.S. government by 1854. Rancho Buenaventura encompassed six square leagues of land on both sides of the Sacramento River from north of downtown Redding to south of Anderson and supported a huge cattle operation (Smith 2009; Bunse and Wee 2020:59).

The arrival of these European-American trappers and settlers had a devastating impact on the native population. As much as 75 percent of the population may have died as a result of the diseases brought by the European-Americans (Bunse and Wee 2020:59).

2.1.2.1 Mining

The Gold Rush of the late 1840s and 1850s created a surge of miners working the rivers and creeks in Shasta County. From its early beginnings, mineral extraction was one of Redding's principal industries. Major Reading located gold at Reading's Bar in Clear Creek (Kyle 2002). The gold discovery marked a turning point for him, and he established a gold mine just north of Clear Creek. He named the area Reading Springs, and by 1849 it became a permanent site for miners, and subsequently became the Gold Rush boom town of Shasta (Shastahistorical.org 2017).

California's exponential growth in the 1850s came from heavy gold, copper, and iron mining throughout the state. Some of these minerals were intensely sought after in the mountains surrounding Redding. The processing of these minerals produced such heavy pollution that local agriculture was damaged (City of Redding 2017). By 1906, only five copper smelters were in operation and their decline led to a drop in Redding's population (Kyle 2002:472; City of Redding 2017). At the end of the Gold Rush, most miners took up ranching, farming, or other trades in the valley areas, with very few settling the forested areas or higher elevations.

2.1.2.2 Redding

The City of Redding lies within the Rancho Buenaventura Land Grant, a 3-mile-wide, 19-mile-long stretch of the western bank of the Sacramento River, which extended from Salt Creek at its northern boundary to Cottonwood Creek at its southern boundary and encompassed 26,000 acres (Hoover et al. 2002; www.cityofredding.org). Rancho Buenaventura was granted to Pierson B. Reading by Mexican Governor Micheltorena in 1844, and the ranch he built on this property became the seat of Shasta County in 1850 (Hoover et al. 2002). While Reading was an influential figure in the region's history and the town was initially named for him, eventually the name was changed to honor Canadian-born politician and journalist Benjamin B. Redding, who came to California by way of Boston and became involved in the booming mining and railroad industries (Gudde 1969; Hoover et al. 2002; Shastahistorical.org 2022). His work as a land agent for the Central Pacific Railroad garnered him influence and the city was named after him in 1872.

In 1874, local legislature moved to change the spelling of the town's name to Reading to honor Pierson B. Reading as founder of the Shasta community. The railroad, however, refused to recognize the name change, and as a result there was a lot of confusion over the official spelling of the town's name. The name was officially confirmed to be Redding by 1880 (Gudde 1969; Shastahistory.org 2017). The City of Redding was incorporated on October 4, 1887 and became recognized under the State Constitution as a city formed under state legislative statues (City of Redding 2022). It became the County Seat in 1888, which was moved from Shasta after the decline of the mining industry (Gudde 1969).

2.1.2.3 Logging History

Logging pre-dated mining due to California's well-known forest of pine, fir, and cedar trees (McGuire et al. 2020:63). One of the initial small-scale logging operations was undertaken by Samuel Hensley who felled trees near the present site of Ball's Ferry in 1844 and sent the lumber to Sutter's Fort via the Sacramento River. Carpenters would then fashion the wood for furniture or buildings (Tuggle 2017). The discovery of gold dramatically increased demand for lumber for fuel, equipment, tunnel braces, and buildings (McGuire et al. 2020:64). The first sawmill in Shasta County was established in 1850 by Johnathan Otis and a man named Truett (Tuggle 2017). Together they established Otis and Truett Lumber Mill on the south fork of Rock Creek, near the town of Shasta, northwest of Redding (Tuggle 2017). Shingle Camp along Highway 44, eventually renamed Shingletown, became the first location to produce shingle and shakes in Shasta County and it quickly became the nucleus of the lumber industry. The California State Census reported eight logging mills in the area in 1852 (Tuggle 2017).

A succeeding gold boom (in Idaho) and the Civil War in 1860 brought new surges of growth to the timber industry. The establishment of the railroad and flume provided more reliable methods of lumber transportation in the 1870s and connected Sacramento and San Francisco with the Upper Sacramento towns. The Blue Ridge Flume transported lumber from remote saw mills in Manton and Viola to Jelly's Ferry (south of the City of Redding) and then to Red Bluff by wagon (Bunse and Wee 2020:64; Vaughn 1992).

Railroad construction, mining in other states, and a growing fruit industry encouraged the start of lumber milling in Redding in 1884 (McGuire 2020:64). The thriving milling industry in Shasta County coincided with the start of construction of Shasta Dam in 1938 and the beginning of World War II in 1941. By this time, the development of box companies in Redding and Anderson had the lumber industry firmly established in the area (McGuire 2020:65). Growth through the 1950s was largely spurred by post-war demand for lumber production and remains one of Redding's principal industries today (City of Redding 2017).

2.1.2.4 Ranching/Farming

Ranching and farming quickly became key industries that supported the local Redding economy in the 1850s. Many settlers turned to sheep ranching during the Gold Rush to maintain the supply of meat and mutton for gold seekers (Bunse and Wee 2020:65). In the northern Sacramento Valley between 1860 and 1900, ranchers would let their sheep range from mountain meadows to summer grazing grounds. Eventually, Red Bluff (south of Redding) became a hub for raising sheep for food and wool (Bunse and

Wee 2020:65). With the establishment of the U.S. Forest Service and other public lands, ranging lands to support sheep shrunk and many ranchers turned to cattle by 1900 (Bunse and Wee 2020:65-66). Cattle and dairy soon became the most valuable livestock in the area and Anderson (south of Redding) became the leading dairy processing center (Bunse and Wee 2020:66).

2.1.2.5 Transportation

The first European-American transportation routes generally followed the established system of Native American trails. As settlers arrived in Oregon and began the travel into the Sacramento Valley, they could choose from various routes. Many of the routes passed through Redding or the nearby vicinity. Trappers soon established a trail that followed the course of the Sacramento River between Oregon and San Francisco. Former U.S. Highway 99 (now State Route 99 south of Red Bluff) and modern Interstate 5 both use this corridor (Bunse and Wee 2020).

Although mining was primarily conducted several miles west of the City of Redding, one of the main routes the immigrants traveled to get to the mining areas near the Sacramento Valley was Noble's Trail. Present-day Highway 44 essentially follows Noble's Trail (Kyle 2002). Noble's Trail became known as the easiest route to descend into the upper Sacramento Valley at Shasta City, to the north of present-day Redding (Trails West Inc. n.d.).

Benjamin Bernard Redding was primarily responsible for bringing the Central Pacific Railroad to Redding. He was born in Canada in 1824 and sailed to California in 1849 to make his fortune during the Gold Rush. He earned quite a diverse skillset including mining, clerical work, and editing. He was elected to the California State Assembly from 1853 to 1854, and elected Mayor of Sacramento in 1856. He also served as Secretary of State from 1863 to 1867. He became the first land agent for the Central Pacific Railroad in 1868 and bought the original property so the railroad could be built. The area 6 miles east of Shasta, known at the time as Poverty Flats, was selected to be the northern terminus of the railroad in 1872 (Shastahistorical.org 2017).

The Homestead Act of 1862 and the arrival of the Central Pacific Railroad in Redding in 1872 led to a population boom in Shasta County. The Homestead Act gave away 160 acres of land at a time to any individual over the age of 21 who was head of household and could pay the $12 processing fee. The vagueness of the wording allowed many women and immigrants to file land claims during this time (Library of Congress 2017). The expansion of the railroads correlated with the migration spurred by this act. Benjamin B. Redding decided to make a rail stop there, and in 1872 the tracks were routed through the area (City of Redding 2017).

In the early 20th century, as transportation became an increasing concern, the City of Redding began to consider the system of roads and their relation to regional or community transport needs. The main road through Redding was a dirt, unimproved road until the late 1920s and "carried miners, loggers, and immigrants during the Gold Rush" (Bunse and Wee 2020:68). This road underwent improvements, eventually becoming part of U.S. Highway 99. Additional improvements by the California Division of Highways resulted in the route being upgraded to Interstate 5. The California Highway Commission completed a survey of the condition of bridges in the area to support the new transportation system and

growth. Some bridges were built at the locations of earlier ferry crossings, and others are now National Landmarks or used as pedestrian crossings. The remains of some bridges (i.e., Diestelhorst Bridge) can still be seen through the area (Bunse and Wee 2020).

2.1.2.6 Dams

After the decline in population from decreased mining operations, the population recovered with a boom in the 1930s spurred by the construction of Shasta Dam along the Sacramento River between 1938 and 1945, 12 miles north of the City of Redding. As flood control became a necessity for farming and ranching, Shasta Dam was constructed to harness torrential rains that caused severe flooding. The dam was completed in 1945, took six years to construct, and included the ability to harness hydroelectric power (Water Education Foundation 2022; City of Redding 2022). Shasta Lake is a major recreation area and important for "water storage, flood control and hydroelectric power" (Kyle 2002:473).

Whiskeytown Dam, constructed along Clear Creek between 1960 and 1963, resulted in the formation of Whiskeytown National Recreation Area with 36 miles of shoreline. With the development of these dams and access to the Sierra Nevada, Trinity Alps, and Cascade Mountains, Redding became a tourist attraction. The dam projects spurred the development of nearby commuter towns of Central Valley, Summit City, and Project City, which are now known under the name Shasta Lake City.

Keswick Dam and Reservoir is located along the Sacramento River. Dam construction began in 1941, finished in 1950, and generates hydroelectric power. Currently, the reservoir is used for outdoor recreation and produces electricity.

3.0 KNOWN CULTURAL RESOURCES

3.1 Record Search Results

A records search request, submitted to the Northeast Information Center of the California Historical Resources Information System on March 23, 2022, returned a total of 403 previously recorded cultural resources within the limits of the City of Redding on April 20, 2022. Previously recorded sites consist of 171 pre-contact, 195 historic, 26 multi-component, and 11 unknown site type or isolates.

3.2 Types of Sites

Both pre-contact and historic sites are known to exist within the City of Redding limits. Pre-contact sites include habitation sites, ceremonial locations, rock art, trails, lithic scatters and quarries, resource collection and processing sites, and isolated pre-contact artifacts. Historic sites include mining locations (i.e., Placer, hydraulic), livestock ranching, early transportation corridors (wagon roads, railroads, roads), logging features, water transportation, trash dumps and privies, buildings, structures, and cemeteries.

Pre-contact sites are often found situated along the banks of rivers and streams (current and former) in locations that provide easy access to a variety of resources. Historic sites are located in similar areas; however, some resources sought by settlers encouraged land use in unfavorable locations. Historic buildings or structures are generally located in or near the City of Redding center, although some

structures or buildings associated with ranching activities or homesteads may be located in more rural areas. Artifacts associated with all of these activities, but are isolated, may be found throughout the City.

3.2.1 National Register of Historic Places and California Register of Historical Resources Listed Resources

The City of Redding 2000-2020 General Plan identifies the following NRHP historic or built environment listed sites:

- Benton Tract Site
- Old City Hall Building
- Pine Street School
- Edward Frisbee House

Below are newly identified NRHP or CRHR listed resources:

- Lorenz Hotel
- Cascade Theater

State Landmarks and Points of Interest:

- Bell's Bridge
- Clear Creek
- Redding's Bar
- Whiskeytown

Built Environment Districts:

- Keswick Dam

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1.0 CULTURAL RESOURCES MITIGATION MEASURES

The City of Redding strives to protect and enhance historical and culturally significant resources within the City. The City will work with all applicable state and federal agencies to assure their projects comply with all applicable laws as well as the processes outlined below. The programmatic procedures outlined below shall be followed for each individual project in the City as applicable. These procedures should be carried out in consideration of the time limits for permitting procedures mandated by the Permit Streamlining Act when applicable.

2.0 PROJECTS SUBJECT TO FEDERAL APPROVALS

If a project is subject to federal approval, funding, authorization, or permit (collectively, "assistance"), then the federal lead agency will direct the compliance and consultation procedures. Typically, this begins with a cultural resources inventory conducted according to the applicable federal agency's regulations (e.g., 36 Code of Federal Regulations [CFR] 800) and guidelines in compliance with Section 106 of the National Historic Preservation Act. This process includes the following steps; however, agency-specific guidelines may differ in terms of process and format of documentation.

- Establishing an Area of Potential Effects (APE) in consultation with the lead federal agency that includes all areas of the project subject to federal permit or approval and takes into account both the direct and indirect impacts. The APE may not necessarily conform to the same boundary as the proposed project or permit area, and will often be larger in size.
- The APE must be inventoried (surveyed) for cultural resources using an appropriate combination of a records search and literature review at the California Historical Resources Information System, a search of the Native American Heritage Commission's (NAHC) Sacred Lands File, a pedestrian survey performed by a SOI Professional Qualification Standards qualified professional archaeologist under current standards, and archival research. All cultural resources identified within the APE must be recorded and evaluated for inclusion in the National Register of Historic Places. All resource identifications and evaluations are subject to approval and concurrence by the lead federal agency, in consultation with Native American tribes, the State Historic Preservation Officer, and other consulting parties deemed appropriate by the federal lead agency. The inventory must be consistent with the Secretary of the Interior's (SOI's) Standards and Guidelines for Identification (48 Federal Register [FR] 44720-23) and the evaluations must be consistent with SOI's Standards and Guidelines for Evaluation (48 FR 44723-26).
- Once the inventory and evaluation are complete, the federal agency must apply the criteria of adverse effects in 36 CFR 800.5(a)(1) to determine if historic properties will be adversely affected by the project. If so, the lead agency must consult and implement appropriate measures to avoid, minimize, or resolve adverse effects.
- Resources that may be discovered inadvertently during construction will be handled pursuant to 36 CFR Part 800.13(b) (discoveries without prior planning), or in accordance with any established procedures of the applicable federal agency.

3.0 PROJECT SUBJECT TO COUNTY OR NON-FEDERAL AGENCY APPROVAL UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

If a project is subject to approval under the California Environmental Quality Act (CEQA), a cultural resources analysis shall be conducted in order to identify historical resources in compliance with CEQA law. This process shall include the following methods. These methods are consistent with what is done for federal approvals (Section 2.0).

- Conduct a cultural resources inventory of the project area, which may include an appropriate combination of a California Historical Resources Information System records search at the Northeast Information Center, a search of the Native American Heritage Commission's (NAHC) Sacred Lands File, and a pedestrian survey performed by a SOI Professional Qualification Standards qualified professional archaeologist under current standards. All cultural resources identified during the inventory shall be recorded and evaluated for the California Register of Historical Resources (CRHR). The inventory and evaluation must be conducted to the satisfaction of the County.

    - For all resources determined eligible to the CRHR, a qualified professional archaeologist shall determine if implementation of the project would result in damage or destruction of "significant" (under CEQA) cultural resources (e.g., historical resources or unique archaeological resources).

    - If feasible, the project shall be designed or configured to avoid impacts on eligible or listed resources. Eligible or listed resources may also be preserved in place, as suggested under California Public Resources Code (PRC) Section 21083.2. If impacts cannot be avoided, the applicable state or local agency (or the project applicant under the agency's direction) shall prepare and implement appropriate treatment measures as determined by a qualified professional. These measures may consist of the following:

        - Data recovery excavations for archaeological sites that are eligible for listing because they contain research-contributing data; or

        - Preparation of interpretive, narrative, or photographic documentation for historical architectural, engineered, or landscape features; or

        - Other treatment measures deemed appropriate by the lead agency.

    - Resources that may be discovered inadvertently during construction may be subject to inadvertent discovery protocols. Such protocols will be project specific, but may take the form of the following:

        - If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within the vicinity of the discovery to an appropriate distance to ensure that the resource is not damaged by adjacent construction activity while the following procedures are implemented. A qualified professional archaeologist, meeting the SOI's Professional Qualification Standards for either prehistoric or historic

archaeology as appropriate for nature of the discovery, shall evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. If the professional archaeologist determines that the find represents a cultural resource from any time period or cultural affiliation, the archaeologist shall immediately notify the City or applicable lead agency and, if the find represents a prehistoric deposit that does not include human remains, the local Native American tribe shall also be notified by the City or lead agency. The parties shall consult on a finding of eligibility and, if the find is determined to be significant under CEQA, develop and implement appropriate treatment measures. Work may not resume in the no-work area until the City has determined, through consultation as appropriate, that either the find does not represent a significant cultural resource under CEQA, or that the treatment measures have been implemented to the satisfaction of the City or applicable lead agency.

- If human remains or remains that are potentially human are discovered, the project proponent shall ensure reasonable protection measures are implemented while an archaeologist is called out to evaluate the find. The archaeologist shall contact the Shasta County coroner per section 7050.5 of the Health and Safety Code. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (as per Section 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (as per Section 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (as per Section 5097.98 of the PRC). This will also include either recording the site with the NAHC or NEIC; using an open space or conservation zoning designation or easement; or recording a reinternment document with Shasta County (as per Assembly Bill [AB] 2641 [Chapter 863, Statutes of 2006]).

- In addition to the above, the lead CEQA agency is responsible for conducting consultation with interested Native American tribes under AB52 to identify any Tribal Cultural Resources (TCRs) that may be affected by the project.
  - The lead agency will send initial outreach letters to all tribes from which the agency has received a general request letter at the earliest point in the CEQA process; within 14 days of the start of CEQA review consistent with California PRC 2180.3.1(d).
  - If a tribe requests consultation within 30 days, the agency has 30 days to initiate and begin consultation consistent with California PRC 2180.3.1(e). The draft environmental document cannot be released for public consideration until consultation, if requested, has been initiated.

- The environmental document for the project must include considerations for mitigation of impacts to TCRs based on the results of consultation (consistent with PRC 21080.3.2(a)). The consultation must be concluded in accordance with PRC 21080.3.2(b) prior to certification of the environmental document.

Some projects are subject to both CEQA and federal approvals, and therefore, the cultural resources inventories, evaluations of significance, findings of effects, and development of avoidance, minimization, or mitigation strategies must be coordinated.

4.0 PROJECTS UNDER SENATE BILL 35 MINISTERIAL APPROVALS

For projects not subject to CEQA, but that are applying for streamlined ministerial approvals for affordable multifamily housing developments under Senate Bill (SB) 35, the local agency in charge of granting such approval is responsible for conducting scoping consultation with California Native American Tribes under AB 168 to identify and consider impacts of the project to TCRs.

- Within 30 days after a project proponent submits a notice of intent to apply for a streamlined ministerial approval, the issuing agency must offer California Native American tribes on the NAHC's list an opportunity for "scoping consultation."
- The agency must engage in consultation with any tribe that responds within 30 days of receiving the notice. If TCRs are identified, the agency and tribe will consult on appropriate Conditions of Approval (COAs) or other type of agreement to mitigate adverse effects to TCRs as a result of the project.
- The project proponent must abide by the terms of any COAs or agreements, which are enforceable by the local agency.
- If agreement is not reached, or if TCRs are present in the project area but no agreements or COAs are established, the project is not eligible for a streamlined ministerial approval under SB 35 and the project proponent may then seek a Conditional Use Permit or discretionary approval under CEQA

Appendices

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Appendix 5.13-1 Noise Data

Fundamentals of Noise

NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

Noise Descriptors

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is 1 micro-inch per second ($1x10^{-6}$ in/sec).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Maximum Sound Level (L_{max})**. The highest RMS sound level measured during the measurement period.
- **Root Mean Square Sound Level (RMS).** The square root of the average of the square of the sound pressure over the measurement period.
- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.
- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.
- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level
± 3 dB	Barely perceptible increase
± 5 dB	Readily perceptible increase
± 10 dB	Twice or half as loud
± 20 dB	Four times or one-quarter as loud

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are "felt" more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Duration

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00

PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the

square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2020, April. *Transportation and Construction Vibration Guidance Manual.* Prepared by ICF International.

TRAFFIC NOISE MODELING

Traffic Noise Modeling Summary - CRD-04.0

		CNEL at 50 Feet											
	Roadway Segment	**Existing**	**GP Buildout**	**CNEL Increase**	Existing Ambient Greater than 65	Greater than 1.5 dBA CNEL	**Impact?**	Existing Ambient Less than >60<65	Greater than 3 dBA CNEL	**Impact?**	Existing Ambient Less than <60	Greater than 5 dBA CNEL	**Impact?**
Interstate 5 (I-5)	N of Twin View Blvd	80.8	81.9	1.1	Yes	No	**No**	No	No	**No**	No	No	**No**
I-5	N of SR-299 / S of Twin View Blvd	81.2	82.2	1.0	Yes	No	**No**	No	No	**No**	No	No	**No**
I-5	N of SR-44 / S of SR-299	82.1	83.1	1.0	Yes	No	**No**	No	No	**No**	No	No	**No**
I-5	S of SR-44 / N of Cypress Ave	82.9	84.0	1.1	Yes	No	**No**	No	No	**No**	No	No	**No**
I-5	S of Cypress Ave / N of Churn Creek Rd	82.4	83.6	1.2	Yes	No	**No**	No	No	**No**	No	No	**No**
I-5	S of Churn Creek Rd	82.2	83.5	1.3	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-44	E of Butte St / W of I-5	77.5	78.2	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-44	E of I-5 / W of Hilltop Dr	76.8	77.4	0.6	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-44	E of Hilltop Dr / W of Victor Ave	75.7	76.6	0.9	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-44	E of Victor Ave	77.3	77.8	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-44	E of Shasta View Dr	75.6	76.6	1.0	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-44	E of Airport Rd	74.1	75.0	0.9	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-273	N of Lake Blvd	70.0	70.4	0.4	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-273	N of Benton Dr/S of Lake Blvd	70.9	71.5	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-273	S of Market/Pine	68.8	69.4	0.6	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-273	S of Buenaventura Ave	72.8	73.5	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-273	S of S. Bonnyview Rd	73.4	74.0	0.6	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-299	W of I-5 / E of SR-273	72.9	73.9	1.0	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-299	E of I-5 / W of Hawley Rd	74.0	74.9	0.8	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-299	E of Hawley Rd/W of Old Oregon Tr.	71.4	72.3	0.8	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-299	E of Old Oregon Tr.	70.5	71.1	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Airport Rd	N of Rancho Rd	72.3	73.6	1.3	Yes	No	**No**	No	No	**No**	No	No	**No**
Airport Rd	S of Rancho Rd	71.7	73.2	1.4	Yes	No	**No**	No	No	**No**	No	No	**No**
S. Bonnyview Rd	west of I-5 Southbound ramps	72.3	73.1	0.8	Yes	No	**No**	No	No	**No**	No	No	**No**
S. Bonnyview Rd	east of I-5 Southbound ramps	70.2	71.2	0.9	Yes	No	**No**	No	No	**No**	No	No	**No**
S. Bonnyview Rd	west of Churn Creek Rd	69.7	70.6	0.9	Yes	No	**No**	No	No	**No**	No	No	**No**
Buenaventura Blvd	N of Placer St	67.4	67.8	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Buenaventura Blvd	S of Placer St	67.4	68.2	0.9	Yes	No	**No**	No	No	**No**	No	No	**No**
California St	btw Shasta & Tehama St	61.1	61.5	0.4	No	No	**No**	Yes	No	**No**	No	No	**No**
Churn Creek Rd	S of SR-299 ramps	68.8	69.6	0.8	Yes	No	**No**	No	No	**No**	No	No	**No**
Churn Creek Rd	N of S Bonnyview	68.9	69.4	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Churn Creek Rd	E of S Bonnyview	67.7	68.9	1.2	Yes	No	**No**	No	No	**No**	No	No	**No**
Cypress Ave	W of Hartnell Ave	71.2	72.3	1.1	Yes	No	**No**	No	No	**No**	No	No	**No**
Cypress Ave	E of Hartnell Ave	66.6	67.3	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
Cypress Ave	E of I-5 / W of Hilltop Dr	68.7	69.5	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
Cypress Ave	E of Hilltop Dr / W of Larkspur Ln	66.9	67.7	0.8	Yes	No	**No**	No	No	**No**	No	No	**No**
Hartnell Ave	W of Bechelli Ln	62.6	62.8	0.1	No	No	**No**	Yes	No	**No**	No	No	**No**
Hartnell Ave	E of Bechelli Ln	66.4	66.4	-0.1	Yes	No	**No**	No	No	**No**	No	No	**No**
Hartnell Ave	E of Churn Creek Rd	67.7	67.9	0.1	Yes	No	**No**	No	No	**No**	No	No	**No**
Hartnell Ave	W of Shasta View Dr	66.4	66.9	0.6	Yes	No	**No**	No	No	**No**	No	No	**No**
Hartnell Ave	E of Shasta View Dr	64.1	64.9	0.8	No	No	**No**	Yes	No	**No**	No	No	**No**
Hawley Rd.	N of SR-299 ramps	65.8	66.5	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
Hilltop Ave	N of Cypress Ave	65.9	66.2	0.3	Yes	No	**No**	No	No	**No**	No	No	**No**
Old Oregon Trail	S of SR-299 ramps	68.5	69.9	1.4	Yes	No	**No**	No	No	**No**	No	No	**No**
Placer St	E of Buenaventura Blvd	68.6	69.5	0.8	Yes	No	**No**	No	No	**No**	No	No	**No**
Placer St	W of Buenaventura Blvd	69.1	69.1	0.0	Yes	No	**No**	No	No	**No**	No	No	**No**
Rancho Rd	W of Airport Rd	65.5	67.2	1.7	Yes	Yes	**Yes**	No	No	**No**	No	No	**No**
Rancho Rd	E of Airport Rd	55.4	59.1	3.7	No	Yes	**No**	No	Yes	**No**	Yes	No	**No**
Shasta View Dr	N of Rancho Rd	61.1	62.2	1.1	No	No	**No**	Yes	No	**No**	No	No	**No**

Tehama St	btw Oregon St & California St	58.7	59.3	0.6	No	No	**No**	No	No	**No**	Yes	No	**No**
Victor Ave	N of Rancho Rd	62.4	63.9	1.5	No	No	**No**	Yes	No	**No**	No	No	**No**
Placer St	W of Thompson Ln to City limit	67.5	67.7	0.2	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-299 (Eureka Way)	W of Buenaventura Bl to City limit	70.6	70.8	0.3	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-299 (Eureka Way)	E of Buenaventura Blvd	69.7	70.5	0.8	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-299 (Eureka Way)	W of Court St	71.0	71.7	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-299 (Eureka Way)	E of Court St/W of SR-273	68.3	68.9	0.6	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-273 (Market St)	N of Cypress St/S of Gold St	62.3	63.1	0.8	No	No	**No**	Yes	No	**No**	No	No	**No**
SR-273 (California St)	N of Gold St/S of Sacramento St	62.2	63.0	0.8	No	No	**No**	Yes	No	**No**	No	No	**No**
SR-273 (California St)	S of Placer St/N of Sacramento St	61.7	62.6	0.9	No	No	**No**	Yes	No	**No**	No	No	**No**
SR-273 (California St)	N of Placer St/S of Tehama St	61.2	62.2	1.0	No	No	**No**	Yes	No	**No**	No	No	**No**
SR-273 (Market St)	N of SR-299/S of Quartz Hill Rd	70.1	70.7	0.6	Yes	No	**No**	No	No	**No**	No	No	**No**
SR-273 (Market St)	N of Quartz Hill Rd/S of Benton Dr	71.0	71.6	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Bechelli Ln	S of Hartnell Ave	62.9	63.2	0.3	No	No	**No**	Yes	No	**No**	No	No	**No**
Bechelli Ln	S of Cypress	64.8	65.5	0.6	No	No	**No**	Yes	No	**No**	No	No	**No**
Churn Creek Rd	S of Hartnell Ave	68.3	69.0	0.6	Yes	No	**No**	No	No	**No**	No	No	**No**
Churn Creek Rd	N of Hartnell Ave/S of Cypress Ave	69.0	69.6	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Churn Creek Rd	N of Cypress Ave/S of Industrial St	70.6	71.0	0.4	Yes	No	**No**	No	No	**No**	No	No	**No**
Churn Creek Rd	N of Industrial St/S of Mistletoe	69.6	70.1	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Churn Creek Rd	N of Mistletoe/S of SR-44	69.5	70.0	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Churn Creek Rd	N of SR-44/S of College View Dr	68.8	69.3	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Old Oregon Trail	N of SR-299	67.4	68.1	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
Twin View Blvd	S of Oasis Rd	58.4	63.8	5.3	No	Yes	**No**	No	Yes	**No**	Yes	Yes	**Yes**
Collyer Dr	W of Churn Creek Rd	55.3	55.9	0.5	No	No	**No**	No	No	**No**	Yes	No	**No**
Collyer Dr	E of Churn Creek Rd	64.7	65.4	0.7	No	No	**No**	Yes	No	**No**	No	No	**No**
Hilltop Dr	S of Lake Blvd/N of Browning St	66.4	66.7	0.2	Yes	No	**No**	No	No	**No**	No	No	**No**
Hilltop Dr	S of Browning St/N of SR-44	68.2	68.2	0.0	Yes	No	**No**	No	No	**No**	No	No	**No**
Cypress Ave	E of Larkspur Ln/W of Victor Ave	64.3	65.1	0.8	No	No	**No**	Yes	No	**No**	No	No	**No**
Old Alturas Rd	W of Shasta View Dr	66.2	67.2	1.0	Yes	No	**No**	No	No	**No**	No	No	**No**
Old Alturas Rd	E of Shasta View Dr	64.9	65.9	1.0	No	No	**No**	Yes	No	**No**	No	No	**No**
Park Marina Dr	btwen Sundial Bridge Dr and Cypress Ave	67.3	67.6	0.3	Yes	No	**No**	No	No	**No**	No	No	**No**
Railroad Ave	N of Buenaventura Blvd	65.4	66.0	0.6	Yes	No	**No**	No	No	**No**	No	No	**No**
Court St	N of Sonoma St	64.0	64.3	0.4	No	No	**No**	Yes	No	**No**	No	No	**No**
Benton Dr	river crossing	65.1	65.8	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
Benton Dr	W of Market St	63.4	63.7	0.2	No	No	**No**	Yes	No	**No**	No	No	**No**
Lake Blvd	btwn Market St & Masonic Ave	71.6	72.0	0.4	Yes	No	**No**	No	No	**No**	No	No	**No**
Lake Blvd	btwn Masonic Ave & St. Nichols Ave	69.2	69.9	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
Lake Blvd	btwn St. Nichols Ave & Keswick Dam Rd	67.3	68.3	1.0	Yes	No	**No**	No	No	**No**	No	No	**No**
Lake Blvd	btwn Keswick Dam Rd & Oasis Blvd	67.8	68.5	0.7	Yes	No	**No**	No	No	**No**	No	No	**No**
Lake Blvd	N of Oasis Blvd to City lmitis	66.7	66.9	0.2	Yes	No	**No**	No	No	**No**	No	No	**No**
Quartz Hill Rd	Kennewick Dam Rd to Harlan Dr	61.4	62.4	1.0	No	No	**No**	Yes	No	**No**	No	No	**No**
Quartz Hill Rd	Harlan Dr to Benton Dr	63.5	64.1	0.6	No	No	**No**	Yes	No	**No**	No	No	**No**
Quartz Hill Rd	Benton Dr to SR-273 (Market St)	61.3	62.8	1.4	No	No	**No**	Yes	No	**No**	No	No	**No**
Keswick Dam Rd	W of Lake Blvd	62.9	63.3	0.5	No	No	**No**	Yes	No	**No**	No	No	**No**
Oasis Rd	E of Lake Blvd	65.7	67.2	1.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Oasis Rd	W of Cascade Blvd	69.3	70.2	1.0	Yes	No	**No**	No	No	**No**	No	No	**No**
Oasis Rd	E of Twin View Blvd	66.1	67.2	1.1	Yes	No	**No**	No	No	**No**	No	No	**No**
Shasta View Dr	S of SR-299, N of Simpson Blvd	63.2	66.0	2.8	No	Yes	**No**	Yes	No	**No**	No	No	**No**
Shasta View Dr	S of Simpson Blvd, N of Palacion Dr	62.8	64.4	1.6	No	Yes	**No**	Yes	No	**No**	No	No	**No**
Shasta View Dr	S of Palacio Dr, N of Hemingway	61.9	63.2	1.2	No	No	**No**	Yes	No	**No**	No	No	**No**
Shasta View Dr	S of Hemingway, N of Inspiration	63.6	65.4	1.8	No	Yes	**No**	Yes	No	**No**	No	No	**No**
Shasta View Dr	S of Hemingway, N of Inspiration	64.8	66.3	1.5	No	No	**No**	Yes	No	**No**	No	No	**No**
Shasta View Dr	S of Old Alturas, N of Atrium Way	65.7	66.2	0.5	Yes	No	**No**	No	No	**No**	No	No	**No**
Shasta View Dr	S of Atrium Way	66.7	67.1	0.4	Yes	No	**No**	No	No	**No**	No	No	**No**
Shasta View Dr	N of Tarmac	66.4	66.8	0.4	Yes	No	**No**	No	No	**No**	No	No	**No**

Shasta View Dr	S of Hawn, N of Hartnell	67.7	68.0	0.3	Yes	No	**No**	No	No	**No**	No	No	**No**
Shasta View Dr	S of Hartnell, N of Alden	65.8	66.0	0.2	Yes	No	**No**	No	No	**No**	No	No	**No**
Shasta View Dr	S of Venus Way, N of Galaxy Way	65.1	65.3	0.3	Yes	No	**No**	No	No	**No**	No	No	**No**

Traffic Noise Calculator: FHWA 77-108 **Project Title: Project Name/Number - Scenario (Existing/Existing Plus Project/etc..)**

	Output						Inputs													
	dBA at 50 feet			Distance to CNEL Contour																
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever
1	77.7	80.3	80.8	261	561	1209	Interstate 5 (I-5)	N of Twin View Blvd	39,500	65	0.0%	84.0%	3.0%	13.0%	81.0%	10.0%	9.0%	4	Soft	50
2	78.2	80.7	81.2	280	604	1301	I-5	N of SR-299 / S of Twin View Blvd	46,500	65	0.0%	86.0%	2.0%	12.0%	81.0%	10.0%	9.0%	4	Soft	50
3	79.0	81.6	82.1	320	689	1484	I-5	N of SR-44 / S of SR-299	60,000	65	0.0%	88.0%	1.0%	11.0%	81.0%	10.0%	9.0%	4	Soft	50
4	79.9	82.4	82.9	364	784	1690	I-5	S of SR-44 / N of Cypress Ave	69,000	65	0.0%	88.0%	1.0%	11.0%	81.0%	10.0%	9.0%	6	Soft	50
5	79.3	81.9	82.4	335	722	1556	I-5	S of Cypress Ave / N of Churn Creek Rd	61,000	65	0.0%	88.0%	1.0%	11.0%	81.0%	10.0%	9.0%	6	Soft	50
6	79.1	81.7	82.2	324	699	1505	I-5	S of Churn Creek Rd	58,000	65	0.0%	88.0%	1.0%	11.0%	81.0%	10.0%	9.0%	6	Soft	50
7	74.4	77.0	77.5	157	339	730	SR-44	E of Butte St / W of I-5	56,000	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
8	73.7	76.3	76.8	142	306	659	SR-44	E of I-5 / W of Hilltop Dr	48,000	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
9	72.6	75.2	75.7	119	257	554	SR-44	E of Hilltop Dr / W of Victor Ave	37,000	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
10	74.3	76.8	77.3	154	332	716	SR-44	E of Victor Ave	35,000	65	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
11	72.5	75.1	75.6	118	255	549	SR-44	E of Shasta View Dr	23,500	65	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
12	71.0	73.6	74.1	94	202	435	SR-44	E of Airport Rd	16,600	65	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
13	66.9	69.5	70.0	50	107	230	SR-273	N of Lake Blvd	12,700	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
14	67.9	70.4	70.9	58	124	268	SR-273	N of Benton Dr/S of Lake Blvd	20,800	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
15	65.8	68.4	68.8	42	90	194	SR-273	S of Market/Pine	16,800	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	5	Soft	50
16	69.7	72.3	72.8	77	166	358	SR-273	S of Buenaventura Ave	19,200	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
17	70.3	72.9	73.4	84	181	389	SR-273	S of S. Bonnyview Rd	21,800	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
18	69.9	72.5	72.9	79	169	365	SR-299	W of I-5 / E of SR-273	20,300	45	0.0%	93.0%	2.0%	5.0%	81.0%	10.0%	9.0%	4	Soft	50
19	70.9	73.5	74.0	93	199	430	SR-299	E of I-5 / W of Hawley Rd	21,000	55	0.0%	96.0%	1.0%	3.0%	81.0%	10.0%	9.0%	4	Soft	50
20	68.4	70.9	71.4	62	134	289	SR-299	E of Hawley Rd/W of Old Oregon Tr.	11,600	55	0.0%	96.0%	1.0%	3.0%	81.0%	10.0%	9.0%	4	Soft	50
21	67.5	70.0	70.5	54	117	252	SR-299	E of Old Oregon Tr.	9,700	55	0.0%	96.0%	1.0%	3.0%	81.0%	10.0%	9.0%	2	Soft	50
22	69.2	71.8	72.3	71	154	331	Airport Rd	N of Rancho Rd	12,100	55	0.0%	89.0%	8.0%	3.0%	81.0%	10.0%	9.0%	2	Soft	50
23	68.7	71.2	71.7	65	140	302	Airport Rd	S of Rancho Rd	9,900	55	0.0%	90.0%	5.0%	5.0%	81.0%	10.0%	9.0%	2	Soft	50
24	69.2	71.8	72.3	71	152	328	S. Bonnyview Rd	west of I-5 Southbound ramps	21,600	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
25	67.2	69.7	70.2	52	112	241	S. Bonnyview Rd	east of I-5 Southbound ramps	23,700	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
26	66.7	69.2	69.7	48	103	223	S. Bonnyview Rd	west of Churn Creek Rd	21,100	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
27	64.3	66.9	67.4	33	72	155	Buenaventura Blvd	N of Placer St	9,300	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	3	Soft	50
28	64.3	66.9	67.4	33	72	155	Buenaventura Blvd	S of Placer St	9,400	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
29	58.3	60.6	61.1	13	27	59	California St	btw Shasta & Tehama St	6,100	30	0.0%	98.0%	1.0%	1.0%	83.0%	9.0%	8.0%	3	Soft	50
30	65.7	68.3	68.8	42	90	193	Churn Creek Rd	S of SR-299 ramps	13,100	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
31	65.8	68.4	68.9	42	91	196	Churn Creek Rd	N of S Bonnyview	13,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
32	64.6	67.2	67.7	35	75	163	Churn Creek Rd	E of S Bonnyview	13,400	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	3	Soft	50
33	68.1	70.7	71.2	60	129	278	Cypress Ave	W of Hartnell Ave	27,900	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	6	Soft	50
34	63.5	66.1	66.6	30	64	138	Cypress Ave	E of Hartnell Ave	19,000	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	6	Soft	50
35	65.7	68.3	68.7	41	89	191	Cypress Ave	E of I-5 / W of Hilltop Dr	31,200	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	6	Soft	50
36	63.8	66.4	66.9	31	67	144	Cypress Ave	E of Hilltop Dr / W of Larkspur Ln	21,000	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	5	Soft	50
37	59.6	62.2	62.6	16	35	75	Hartnell Ave	W of Bechelli Ln	12,000	25	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
38	63.4	65.9	66.4	29	62	134	Hartnell Ave	E of Bechelli Ln	13,600	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
39	64.7	67.3	67.7	35	76	164	Hartnell Ave	E of Churn Creek Rd	18,400	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
40	63.3	65.9	66.4	29	62	133	Hartnell Ave	W of Shasta View Dr	10,000	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
41	61.0	63.6	64.1	20	43	93	Hartnell Ave	E of Shasta View Dr	5,900	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
42	62.7	65.3	65.8	26	57	122	Hawley Rd.	N of SR-299 ramps	6,400	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
43	62.9	65.4	65.9	27	58	124	Hilltop Ave	N of Cypress Ave	12,100	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
44	65.5	68.1	68.5	40	86	186	Old Oregon Trail	S of SR-299 ramps	7,400	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
45	65.6	68.2	68.6	41	88	189	Placer St	E of Buenaventura Blvd	12,500	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	3	Soft	50
46	66.0	68.6	69.1	44	94	202	Placer St	W of Buenaventura Blvd	13,900	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	3	Soft	50
47	62.5	65.1	65.5	25	54	117	Rancho Rd	W of Airport Rd	6,200	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
48	52.3	54.9	55.4	5	11	25	Rancho Rd	E of Airport Rd	600	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
49	58.0	60.6	61.1	13	28	59	Shasta View Dr	N of Rancho Rd	2,700	40	0.0%	96.0%	3.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
50	56.5	58.4	58.7	9	19	41	Tehama St	btw Oregon St & California St	3,600	30	0.0%	96.0%	3.0%	1.0%	88.0%	6.0%	6.0%	2	Soft	50
51	59.3	61.9	62.4	15	33	72	Victor Ave	N of Rancho Rd	3,600	40	0.0%	96.0%	3.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
52	64.4	67.0	67.5	34	73	158	Placer St	W of Thompson Ln to City limit	9,700	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
53	67.5	70.1	70.6	55	118	253	SR-299 (Eureka Way)	W of Buenaventura Bl to City limit	11,800	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
54	66.7	69.3	69.7	48	104	223	SR-299 (Eureka Way)	E of Buenaventura Blvd	15,800	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
55	67.9	70.5	71.0	58	125	269	SR-299 (Eureka Way)	W of Court St	20,900	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
56	65.2	67.8	68.3	38	83	178	SR-299 (Eureka Way)	E of Court St/W of SR-273	20,800	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
57	59.2	61.8	62.3	15	33	71	SR-273 (Market St)	N of Cypress St/S of Gold St	7,700	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
58	59.1	61.7	62.2	15	32	70	SR-273 (California St)	N of Gold St/S of Sacramento St	7,500	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
59	58.6	61.2	61.7	14	30	65	SR-273 (California St)	S of Placer St/N of Sacramento St	6,700	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
60	58.2	60.7	61.2	13	28	60	SR-273 (California St)	N of Placer St/S of Tehama St	6,000	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
61	67.0	69.6	70.1	51	110	236	SR-273 (Market St)	N of SR-299/S of Quartz Hill Rd	17,200	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
62	68.0	70.5	71.0	59	126	272	SR-273 (Market St)	N of Quartz Hill Rd/S of Benton Dr	20,100	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	6	Soft	50
63	59.8	62.4	62.9	17	36	78	Bechelli Ln	S of Hartnell Ave	13,100	25	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
64	61.8	64.3	64.8	23	49	105	Bechelli Ln	S of Cypress	9,400	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
65	65.3	67.8	68.3	39	83	180	Churn Creek Rd	S of Hartnell Ave	15,300	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
66	66.0	68.5	69.0	43	93	200	Churn Creek Rd	N of Hartnell Ave/S of Cypress Ave	17,900	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
67	67.6	70.1	70.6	55	119	255	Churn Creek Rd	N of Cypress Ave/S of Industrial St	25,900	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
68	66.5	69.1	69.6	47	101	218	Churn Creek Rd	N of Industrial St/S of Mistletoe	20,400	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
69	66.4	69.0	69.5	46	100	215	Churn Creek Rd	N of Mistletoe/S of SR-44	20,000	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
70	65.7	68.3	68.8	41	89	193	Churn Creek Rd	N of SR-44/S of College View Dr	12,900	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	3	Soft	50
71	64.3	66.9	67.4	34	72	156	Old Oregon Trail	N of SR-299	9,500	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
72	55.4	57.9	58.4	8	18	39	Twin View Blvd	S of Oasis Rd	1,200	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
73	52.3	54.9	55.3	5	11	24	Collyer Dr	W of Churn Creek Rd	2,300	25	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
74	61.6	64.2	64.7	22	48	103	Collyer Dr	E of Churn Creek Rd	5,100	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
75	63.4	65.9	66.4	29	62	134	Hilltop Dr	S of Lake Blvd/N of Browning St	14,000	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
76	65.1	67.7	68.2	38	81	175	Hilltop Dr	S of Browning St/N of SR-44	20,200	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
77	61.2	63.8	64.3	21	45	96	Cypress Ave	E of Larkspur Ln/W of Victor Ave	11,500	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	5	Soft	50
78	63.2	65.7	66.2	28	60	130	Old Alturas Rd	W of Shasta View Dr	9,700	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
79	61.9	64.4	64.9	23	49	107	Old Alturas Rd	E of Shasta View Dr	7,200	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
80	64.2	66.8	67.3	33	71	154	Park Marina Dr	btwen Sundial Bridge Dr and Cypress Ave	12,100	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
81	62.3	64.9	65.4	25	53	114	Railroad Ave	N of Buenaventura Blvd	8,000	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
82	60.9	63.5	64.0	20	43	92	Court St	N of Sonoma St	11,300	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
83	62.0	64.6	65.1	23	50	109	Benton Dr	river crossing	10,200	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
84	60.4	62.9	63.4	18	39	85	Benton Dr	W of Market St	7,000	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
85	68.5	71.1	71.6	63	137	295	Lake Blvd	btwn Market St & Masonic Ave	24,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
86	66.1	68.7	69.2	44	95	206	Lake Blvd	btwn Masonic Ave & St. Nichols Ave	14,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
87	64.2	66.8	67.3	33	71	153	Lake Blvd	btwn St. Nichols Ave & Keswick Dam Rd	9,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
88	64.7	67.3	67.8	36	77	165	Lake Blvd	btwn Keswick Dam Rd & Oasis Blvd	10,100	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
89	63.6	66.2	66.7	30	65	140	Lake Blvd	N of Oasis Blvd to City lmitis	6,000	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft	50
90	58.3	60.9	61.4	13	29	62	Quartz Hill Rd	Kennewick Dam Rd to Harlan Dr	4,400	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
91	60.4	63.0	63.5	18	40	85	Quartz Hill Rd	Harlan Dr to Benton Dr	7,100	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
92	58.2	60.8	61.3	13	28	61	Quartz Hill Rd	Benton Dr to SR-273 (Market St)	4,300	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
93	59.8	62.4	62.9	17	36	78	Keswick Dam Rd	W of Lake Blvd	4,500	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
94	62.6	65.2	65.7	26	56	120	Oasis Rd	E of Lake Blvd	4,900	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
95	66.2	68.8	69.3	45	96	208	Oasis Rd	W of Cascade Blvd	11,200	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
96	63.0	65.6	66.1	27	59	127	Oasis Rd	E of Twin View Blvd	7,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
97	60.1	62.7	63.2	18	38	81	Shasta View Dr	S of SR-299, N of Simpson Blvd	4,800	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
98	59.7	62.3	62.8	17	36	77	Shasta View Dr	S of Simpson Blvd, N of Palacion Dr	4,400	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
99	58.9	61.4	61.9	14	31	67	Shasta View Dr	S of Palacio Dr, N of Hemingway	3,600	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
100	60.5	63.1	63.6	19	40	87	Shasta View Dr	S of Hemingway, N of Inspiration	5,300	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
101	61.7	64.3	64.8	23	49	105	Shasta View Dr	S of Hemingway, N of Inspiration	7,000	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
102	62.6	65.2	65.7	26	56	120	Shasta View Dr	S of Old Alturas, N of Atrium Way	8,600	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
103	63.7	66.2	66.7	30	65	141	Shasta View Dr	S of Atrium Way	10,900	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
104	63.3	65.9	66.4	29	62	134	Shasta View Dr	N of Tarmac	10,100	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
105	64.6	67.2	67.7	35	76	163	Shasta View Dr	S of Hawn, N of Hartnell	13,600	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
106	62.8	65.3	65.8	26	57	122	Shasta View Dr	S of Hartnell, N of Alden	8,000	40	0.0%	96.0%	3.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50
107	62.0	64.6	65.1	23	50	109	Shasta View Dr	S of Venus Way, N of Galaxy Way	6,700	40	0.0%	96.0%	3.0%	1.0%	81.0%	10.0%	9.0%	2	Soft	50

Traffic Noise Calculator: FHWA 77-108 **Project Title: Project Name/Number - Scenario (Existing/Existing Plus Project/etc..)**

	Output						Inputs												
	dBA at 50 feet			Distance to CNEL Contour															
ID	$L_{eq-24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition
1	78.8	81.4	81.9	309	667	1436	Interstate 5 (I-5)	N of Twin View Blvd	51,100	65	0.0%	84.0%	3.0%	13.0%	81.0%	10.0%	9.0%	4	Soft
2	79.1	81.7	82.2	325	700	1509	I-5	N of SR-299 / S of Twin View Blvd	58,100	65	0.0%	86.0%	2.0%	12.0%	81.0%	10.0%	9.0%	4	Soft
3	80.0	82.6	83.1	371	799	1722	I-5	N of SR-44 / S of SR-299	75,000	65	0.0%	88.0%	1.0%	11.0%	81.0%	10.0%	9.0%	4	Soft
4	81.0	83.5	84.0	430	927	1996	I-5	S of SR-44 / N of Cypress Ave	88,600	65	0.0%	88.0%	1.0%	11.0%	81.0%	10.0%	9.0%	6	Soft
5	80.5	83.1	83.6	402	866	1865	I-5	S of Cypress Ave / N of Churn Creek Rd	80,000	65	0.0%	88.0%	1.0%	11.0%	81.0%	10.0%	9.0%	6	Soft
6	80.4	83.0	83.5	396	853	1837	I-5	S of Churn Creek Rd	78,200	65	0.0%	88.0%	1.0%	11.0%	81.0%	10.0%	9.0%	6	Soft
7	75.1	77.7	78.2	176	379	816	SR-44	E of Butte St / W of I-5	66,200	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
8	74.4	77.0	77.4	157	338	727	SR-44	E of I-5 / W of Hilltop Dr	55,700	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
9	73.5	76.1	76.6	138	297	639	SR-44	E of Hilltop Dr / W of Victor Ave	45,900	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
10	74.8	77.3	77.8	166	358	771	SR-44	E of Victor Ave	39,100	65	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
11	73.5	76.1	76.6	138	296	639	SR-44	E of Shasta View Dr	29,500	65	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
12	72.0	74.5	75.0	108	233	503	SR-44	E of Airport Rd	20,600	65	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
13	67.3	69.9	70.4	53	114	246	SR-273	N of Lake Blvd	14,000	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
14	68.4	71.0	71.5	63	135	291	SR-273	N of Benton Dr/S of Lake Blvd	23,500	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
15	66.3	68.9	69.4	46	98	212	SR-273	S of Market/Pine	19,100	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	5	Soft
16	70.4	73.0	73.5	86	184	397	SR-273	S of Buenaventura Ave	22,500	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
17	70.9	73.5	74.0	92	198	426	SR-273	S of S. Bonnyview Rd	25,000	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
18	70.9	73.4	73.9	91	197	424	SR-299	W of I-5 / E of SR-273	25,400	45	0.0%	93.0%	2.0%	5.0%	81.0%	10.0%	9.0%	4	Soft
19	71.8	74.4	74.9	105	227	489	SR-299	E of I-5 / W of Hawley Rd	25,500	55	0.0%	96.0%	1.0%	3.0%	81.0%	10.0%	9.0%	4	Soft
20	69.2	71.8	72.3	71	153	329	SR-299	E of Hawley Rd/W of Old Oregon Tr.	14,100	55	0.0%	96.0%	1.0%	3.0%	81.0%	10.0%	9.0%	4	Soft
21	68.0	70.6	71.1	59	127	274	SR-299	E of Old Oregon Tr.	11,000	55	0.0%	96.0%	1.0%	3.0%	81.0%	10.0%	9.0%	2	Soft
22	70.6	73.1	73.6	87	188	405	Airport Rd	N of Rancho Rd	16,400	55	0.0%	89.0%	8.0%	3.0%	81.0%	10.0%	9.0%	2	Soft
23	70.1	72.7	73.2	81	175	377	Airport Rd	S of Rancho Rd	13,800	55	0.0%	90.0%	5.0%	5.0%	81.0%	10.0%	9.0%	2	Soft
24	70.0	72.6	73.1	80	172	371	S. Bonnyview Rd	west of I-5 Southbound ramps	26,000	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
25	68.1	70.7	71.2	60	129	277	S. Bonnyview Rd	east of I-5 Southbound ramps	29,300	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
26	67.5	70.1	70.6	55	118	254	S. Bonnyview Rd	west of Churn Creek Rd	25,700	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
27	64.8	67.3	67.8	36	77	167	Buenaventura Blvd	N of Placer St	10,500	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
28	65.2	67.7	68.2	38	82	177	Buenaventura Blvd	S of Placer St	11,500	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
29	58.6	61.0	61.5	13	29	62	California St	btw Shasta & Tehama St	6,700	30	0.0%	98.0%	1.0%	1.0%	83.0%	9.0%	8.0%	2	Soft
30	66.5	69.1	69.6	47	101	219	Churn Creek Rd	S of SR-299 ramps	15,800	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
31	66.3	68.9	69.4	45	98	210	Churn Creek Rd	N of S Bonnyview	14,900	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
32	65.8	68.4	68.9	42	91	197	Churn Creek Rd	E of S Bonnyview	17,800	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	3	Soft
33	69.2	71.8	72.3	71	153	329	Cypress Ave	W of Hartnell Ave	35,900	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	6	Soft
34	64.2	66.8	67.3	33	71	153	Cypress Ave	E of Hartnell Ave	22,200	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	6	Soft
35	66.4	69.0	69.5	46	99	214	Cypress Ave	E of I-5 / W of Hilltop Dr	36,800	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	6	Soft
36	64.6	67.2	67.7	35	75	162	Cypress Ave	E of Hilltop Dr / W of Larkspur Ln	25,100	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	5	Soft
37	59.7	62.3	62.8	16	35	76	Hartnell Ave	W of Bechelli Ln	12,700	25	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
38	63.3	65.9	66.4	29	62	133	Hartnell Ave	E of Bechelli Ln	13,800	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
39	64.8	67.4	67.9	36	78	167	Hartnell Ave	E of Churn Creek Rd	19,500	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
40	63.9	66.4	66.9	31	67	145	Hartnell Ave	W of Shasta View Dr	11,400	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
41	61.8	64.4	64.9	23	49	106	Hartnell Ave	E of Shasta View Dr	7,100	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
42	63.5	66.1	66.5	29	63	137	Hawley Rd.	N of SR-299 ramps	7,800	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
43	63.1	65.7	66.2	28	60	130	Hilltop Ave	N of Cypress Ave	13,300	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
44	66.8	69.4	69.9	49	106	228	Old Oregon Trail	S of SR-299 ramps	10,100	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
45	66.4	69.0	69.5	46	99	214	Placer St	E of Buenaventura Blvd	15,300	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
46	66.1	68.6	69.1	44	94	203	Placer St	W of Buenaventura Blvd	14,100	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
47	64.1	66.7	67.2	33	70	151	Rancho Rd	W of Airport Rd	9,100	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
48	56.0	58.6	59.1	9	20	43	Rancho Rd	E of Airport Rd	1,400	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
49	59.2	61.7	62.2	15	33	70	Shasta View Dr	N of Rancho Rd	3,500	40	0.0%	96.0%	3.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
50	57.1	58.9	59.3	10	21	45	Tehama St	btw Oregon St & California St	4,100	30	0.0%	96.0%	3.0%	1.0%	88.0%	6.0%	6.0%	2	Soft
51	60.8	63.4	63.9	20	42	91	Victor Ave	N of Rancho Rd	5,100	40	0.0%	96.0%	3.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
52	64.6	67.2	67.7	35	76	163	Placer St	W of Thompson Ln to City limit	10,200	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
53	67.8	70.3	70.8	57	122	263	SR-299 (Eureka Way)	W of Buenaventura Bl to City limit	12,500	55	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
54	67.5	70.1	70.5	54	117	252	SR-299 (Eureka Way)	E of Buenaventura Blvd	19,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
55	68.6	71.2	71.7	65	139	300	SR-299 (Eureka Way)	W of Court St	24,600	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
56	65.8	68.4	68.9	42	91	196	SR-299 (Eureka Way)	E of Court St/W of SR-273	24,000	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
57	60.1	62.6	63.1	17	37	81	SR-273 (Market St)	N of Cypress St/S of Gold St	9,300	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
58	60.0	62.5	63.0	17	37	80	SR-273 (California St)	N of Gold St/S of Sacramento St	9,100	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
59	59.6	62.1	62.6	16	35	75	SR-273 (California St)	S of Placer St/N of Sacramento St	8,300	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
60	59.2	61.8	62.2	15	33	71	SR-273 (California St)	N of Placer St/S of Tehama St	7,600	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
61	67.7	70.3	70.7	56	121	260	SR-273 (Market St)	N of SR-299/S of Quartz Hill Rd	19,900	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
62	68.5	71.1	71.6	64	137	295	SR-273 (Market St)	N of Quartz Hill Rd/S of Benton Dr	22,800	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	6	Soft
63	60.1	62.7	63.2	18	38	82	Bechelli Ln	S of Hartnell Ave	14,000	25	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
64	62.4	65.0	65.5	25	54	116	Bechelli Ln	S of Cypress	11,200	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
65	65.9	68.5	69.0	43	92	198	Churn Creek Rd	S of Hartnell Ave	17,700	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
66	66.5	69.1	69.6	47	101	217	Churn Creek Rd	N of Hartnell Ave/S of Cypress Ave	20,300	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
67	67.9	70.5	71.0	58	126	271	Churn Creek Rd	N of Cypress Ave/S of Industrial St	28,300	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
68	67.0	69.6	70.1	51	109	235	Churn Creek Rd	N of Industrial St/S of Mistletoe	22,800	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
69	66.9	69.5	70.0	50	108	232	Churn Creek Rd	N of Mistletoe/S of SR-44	22,400	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
70	66.2	68.8	69.3	45	96	207	Churn Creek Rd	N of SR-44/S of College View Dr	14,600	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
71	65.1	67.6	68.1	37	81	174	Old Oregon Trail	N of SR-299	11,200	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
72	60.7	63.3	63.8	19	41	89	Twin View Blvd	S of Oasis Rd	4,100	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
73	52.8	55.4	55.9	6	12	27	Collyer Dr	W of Churn Creek Rd	2,600	25	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
74	62.3	64.9	65.4	25	53	115	Collyer Dr	E of Churn Creek Rd	6,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
75	63.6	66.2	66.7	30	65	139	Hilltop Dr	S of Lake Blvd/N of Browning St	14,800	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
76	65.1	67.7	68.2	38	81	175	Hilltop Dr	S of Browning St/N of SR-44	20,200	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
77	62.0	64.6	65.1	24	51	109	Cypress Ave	E of Larkspur Ln/W of Victor Ave	13,900	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	5	Soft
78	64.2	66.7	67.2	33	70	152	Old Alturas Rd	W of Shasta View Dr	12,200	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
79	62.8	65.4	65.9	27	57	124	Old Alturas Rd	E of Shasta View Dr	9,000	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
80	64.6	67.1	67.6	35	75	161	Park Marina Dr	btwen Sundial Bridge Dr and Cypress Ave	13,000	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
81	62.9	65.5	66.0	27	58	126	Railroad Ave	N of Buenaventura Blvd	9,200	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
82	61.3	63.8	64.3	21	45	97	Court St	N of Sonoma St	12,300	30	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
83	62.7	65.3	65.8	26	56	121	Benton Dr	river crossing	12,000	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
84	60.6	63.2	63.7	19	41	88	Benton Dr	W of Market St	7,400	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
85	68.9	71.5	72.0	68	146	314	Lake Blvd	btwn Market St & Masonic Ave	26,400	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
86	66.8	69.4	69.9	49	106	229	Lake Blvd	btwn Masonic Ave & St. Nichols Ave	16,400	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
87	65.3	67.8	68.3	39	83	179	Lake Blvd	btwn St. Nichols Ave & Keswick Dam Rd	11,400	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
88	65.5	68.1	68.5	40	86	186	Lake Blvd	btwn Keswick Dam Rd & Oasis Blvd	12,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
89	63.8	66.4	66.9	31	67	144	Lake Blvd	N of Oasis Blvd to City limitis	6,300	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	4	Soft
90	59.3	61.9	62.4	16	33	72	Quartz Hill Rd	Kennewick Dam Rd to Harlan Dr	5,500	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
91	61.0	63.6	64.1	20	44	94	Quartz Hill Rd	Harlan Dr to Benton Dr	8,200	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
92	59.7	62.3	62.8	16	35	76	Quartz Hill Rd	Benton Dr to SR-273 (Market St)	6,000	35	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
93	60.3	62.9	63.3	18	39	84	Keswick Dam Rd	W of Lake Blvd	5,000	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
94	64.2	66.7	67.2	33	70	152	Oasis Rd	E of Lake Blvd	7,000	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
95	67.2	69.8	70.2	52	112	241	Oasis Rd	W of Cascade Blvd	14,000	50	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
96	64.1	66.7	67.2	32	70	150	Oasis Rd	E of Twin View Blvd	9,000	45	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
97	62.9	65.5	66.0	27	58	126	Shasta View Dr	S of SR-299, N of Simpson Blvd	9,200	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
98	61.4	63.9	64.4	21	46	99	Shasta View Dr	S of Simpson Blvd, N of Palacion Dr	6,400	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
99	60.1	62.7	63.2	18	38	81	Shasta View Dr	S of Palacio Dr, N of Hemingway	4,800	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
100	62.3	64.9	65.4	25	53	114	Shasta View Dr	S of Hemingway, N of Inspiration	8,000	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
101	63.2	65.8	66.3	28	61	131	Shasta View Dr	S of Hemingway, N of Inspiration	9,800	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
102	63.1	65.7	66.2	28	60	129	Shasta View Dr	S of Old Alturas, N of Atrium Way	9,600	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
103	64.0	66.6	67.1	32	69	149	Shasta View Dr	S of Atrium Way	11,900	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
104	63.7	66.3	66.8	31	66	142	Shasta View Dr	N of Tarmac	11,100	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
105	65.0	67.5	68.0	37	80	172	Shasta View Dr	S of Hawn, N of Hartnell	14,700	40	0.0%	98.0%	1.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
106	63.0	65.5	66.0	27	59	126	Shasta View Dr	S of Hartnell, N of Alden	8,400	40	0.0%	96.0%	3.0%	1.0%	81.0%	10.0%	9.0%	2	Soft
107	62.2	64.8	65.3	24	52	113	Shasta View Dr	S of Venus Way, N of Galaxy Way	7,100	40	0.0%	96.0%	3.0%	1.0%	81.0%	10.0%	9.0%	2	Soft

Interstate 5 (I-5)	**N of Twin View Blvd**	70 dBA	65 dBA	60 dBA
I-5	N of SR-299 / S of Twin View Blvd	309	667	1436
I-5	N of SR-44 / S of SR-299	325	700	1509
I-5	S of SR-44 / N of Cypress Ave	371	799	1722
I-5	S of Cypress Ave / N of Churn Creek Rd	430	927	1996
I-5	S of Churn Creek Rd	402	866	1865
SR-44	E of Butte St / W of I-5	396	853	1837
SR-44	E of I-5 / W of Hilltop Dr	176	379	816
SR-44	E of Hilltop Dr / W of Victor Ave	157	338	727
SR-44	E of Victor Ave	138	297	639
SR-44	E of Shasta View Dr	166	358	771
SR-44	E of Airport Rd	138	296	639
SR-273	N of Lake Blvd	108	233	503
SR-273	N of Benton Dr/S of Lake Blvd	53	114	246
SR-273	S of Market/Pine	63	135	291
SR-273	S of Buenaventura Ave	46	98	212
SR-273	S of S. Bonnyview Rd	86	184	397
SR-299	W of I-5 / E of SR-273	92	198	426
SR-299	E of I-5 / W of Hawley Rd	91	197	424
SR-299	E of Hawley Rd/W of Old Oregon Tr.	105	227	489
SR-299	E of Old Oregon Tr.	71	153	329
Airport Rd	N of Rancho Rd	59	127	274
Airport Rd	S of Rancho Rd	87	188	405
S. Bonnyview Rd	west of I-5 Southbound ramps	81	175	377
S. Bonnyview Rd	east of I-5 Southbound ramps	80	172	371
S. Bonnyview Rd	west of Churn Creek Rd	60	129	277
Buenaventura Blvd	N of Placer St	55	118	254
Buenaventura Blvd	S of Placer St	36	77	167
California St	btw Shasta & Tehama St	38	82	177
Churn Creek Rd	S of SR-299 ramps	13	29	62
Churn Creek Rd	N of S Bonnyview	47	101	219
Churn Creek Rd	E of S Bonnyview	45	98	210
Cypress Ave	W of Hartnell Ave	42	91	197
Cypress Ave	E of Hartnell Ave	71	153	329
Cypress Ave	E of I-5 / W of Hilltop Dr	33	71	153
Cypress Ave	E of Hilltop Dr / W of Larkspur Ln	46	99	214
Hartnell Ave	W of Bechelli Ln	35	75	162
Hartnell Ave	E of Bechelli Ln	16	35	76
Hartnell Ave	E of Churn Creek Rd	29	62	133
Hartnell Ave	W of Shasta View Dr	36	78	167
Hartnell Ave	E of Shasta View Dr	31	67	145
Hawley Rd.	N of SR-299 ramps	23	49	106
Hilltop Ave	N of Cypress Ave	29	63	137
Old Oregon Trail	S of SR-299 ramps	28	60	130
Placer St	E of Buenaventura Blvd	49	106	228

Placer St	W of Buenaventura Blvd	46	99	214
Rancho Rd	W of Airport Rd	44	94	203
Rancho Rd	E of Airport Rd	33	70	151
Shasta View Dr	N of Rancho Rd	9	20	43
Tehama St	btw Oregon St & California St	15	33	70
Victor Ave	N of Rancho Rd	10	21	45
		20	42	91

Interstate !	N of Twin View Blvd	70 dBA	65 dBA	60 dBA
I-5	N of SR-299 / S of Twin View Blvd	261	561	1209
I-5	N of SR-44 / S of SR-299	280	604	1301
I-5	S of SR-44 / N of Cypress Ave	320	689	1484
I-5	S of Cypress Ave / N of Churn Creek Rd	364	784	1690
I-5	S of Churn Creek Rd	335	722	1556
SR-44	E of Butte St / W of I-5	324	699	1505
SR-44	E of I-5 / W of Hilltop Dr	157	339	730
SR-44	E of Hilltop Dr / W of Victor Ave	142	306	659
SR-44	E of Victor Ave	119	257	554
SR-44	E of Shasta View Dr	154	332	716
SR-44	E of Airport Rd	118	255	549
SR-273	N of Lake Blvd	94	202	435
SR-273	N of Benton Dr/S of Lake Blvd	50	107	230
SR-273	S of Market/Pine	58	124	268
SR-273	S of Buenaventura Ave	42	90	194
SR-273	S of S. Bonnyview Rd	77	166	358
SR-299	W of I-5 / E of SR-273	84	181	389
SR-299	E of I-5 / W of Hawley Rd	79	169	365
SR-299	E of Hawley Rd/W of Old Oregon Tr.	93	199	430
SR-299	E of Old Oregon Tr.	62	134	289
Airport Rd	N of Rancho Rd	54	117	252
Airport Rd	S of Rancho Rd	71	154	331
S. Bonnyvie	west of I-5 Southbound ramps	65	140	302
S. Bonnyvie	east of I-5 Southbound ramps	71	152	328
S. Bonnyvie	west of Churn Creek Rd	52	112	241
Buenavent	N of Placer St	48	103	223
Buenavent	S of Placer St	33	72	155
California S	btw Shasta & Tehama St	33	72	155
Churn Cree	S of SR-299 ramps	13	27	59
Churn Cree	N of S Bonnyview	42	90	193
Churn Cree	E of S Bonnyview	42	91	196
Cypress Av	W of Hartnell Ave	35	75	163
Cypress Av	E of Hartnell Ave	60	129	278
Cypress Av	E of I-5 / W of Hilltop Dr	30	64	138
Cypress Av	E of Hilltop Dr / W of Larkspur Ln	41	89	191
Hartnell Av	W of Bechelli Ln	31	67	144
Hartnell Av	E of Bechelli Ln	16	35	75
Hartnell Av	E of Churn Creek Rd	29	62	134
Hartnell Av	W of Shasta View Dr	35	76	164
Hartnell Av	E of Shasta View Dr	29	62	133
Hawley Rd.	N of SR-299 ramps	20	43	93
Hilltop Ave	N of Cypress Ave	26	57	122
Old Oregor	S of SR-299 ramps	27	58	124
Placer St	E of Buenaventura Blvd	40	86	186

Placer St	W of Buenaventura Blvd	41	88	189
Rancho Rd	W of Airport Rd	44	94	202
Rancho Rd	E of Airport Rd	25	54	117
Shasta Vie	N of Rancho Rd	5	11	25
Tehama St	btw Oregon St & California St	13	28	59
Victor Ave	N of Rancho Rd	9	19	41
		15	33	72

Rail Modeling

RAIL INFORMATION

There is one railroad line that run through the City of Redding and one spur line that serves Meek's Lumber and Hardware production facility. The Union Pacific (UP) Railroad owns and operates freight traffic on the Valley Subdivision, which parallels Highway 273 throughout most of the City. The UP Valley Subdivision is approximately 209 miles long and runs from Dunsmuir to Marysville. It is a major freight line transporting goods from Portland and Eugene, Oregon to Roseville and Los Angeles. Amtrak also operates a passenger train along this line, the Coast Starlight, that operates three days a week and stops at the Amtrak Station at 1620. The railroad spur off the main line is just south of N. Bonnyview Road and is used by the lumber production facility.

There are eight at-grade crossings along the main line at and one at-grade crossing along the spur line. According to federal regulations, trains are required to blow their horns as they approach at-grade crossings as a safety measure to alert motorists and pedestrians. This can be a significant noise impact for nearby residents and commercial/industrial land uses. The cluster of five at-grade crossings in close proximity in the downtown area of the City could result in significant traffic disruption and noise impacts.

EXISTING CONDITIONS

There currently are approximately 16 trains/day that travel through the City of Redding. According to the Federal Rail Administration (FRA) crossing data and the latest Amtrak schedule, there are 12 UP freight trains and one Amtrak train (Coast Starlight). The southbound Amtrak Coast Starlight arrives at the Amtrak Redding station at 2:21 am on Tuesday, Thursday, and Sunday and the northbound Coast Starlight departs from the Amtrak station on Tuesday, Thursday, and Saturday at 3:06 am, according to the latest Amtrak schedule. Because there is minimal passenger traffic on this line, most of the freight trains travel through the City during the day although according to FRA data, there are at least two night freight trains.

According to the UP timetable, speed limits are limited to 45 mph for both freight and passenger trains in the downtown area of Redding. The freight trains that travels through Redding are typically long manifest or intermodal trains with approximately four locomotives and 100 cars. The Amtrak Coast Starlight typically has two locomotives and 12 cars.

According to the FRA data, there are typically two switching trains per day that travel on the spur that serves Meek's Lumber and Hardware production facility. The speed limit on this track is 10 mph and the switching trains usually consist of two locomotives and 10 cars.

NOISE CONTOURS

Day-night average noise levels from train traffic vary depending on the number of trains operating along a given line per day, the timing and duration of train pass-by events, and whether the receptor is near an at-grade crossing. When trains approach an at-grade crossing or passenger station, they are required to sound their locomotive horns for 15 to 20 seconds but not more than 0.25 mile in advance of the crossing. The required pattern is two long, one short, and one long sounding horn. The required volume for train horns is between 96 and 110 dBA.

Existing railroad noise levels were estimated, based on the current train traffic along the UP Valley Subdivision and spur within the City limits, using the Federal Transit Administration's (FTA's) CREATE rail noise model and the Federal Rail Administration's (FRA's) Grade Crossing Horn Model. The number of locomotives and rail cars was determined from the Amtrak website, UP Valley Subdivision videos, and FRA accident data.

There currently are 14 trains/weekday along the UP Valley Subdivision, with 12 freight trains and two Amtrak trains. The CREATE rail noise model considers daytime trains to be during the hours of 7 AM to 10 PM and nighttime trains from 10 PM to 7 AM. There currently are four night trains that travel through the City of Redding: two freight trains and two Amtrak trains.

The distance from the track to the 65 dBA contour due to train track noise is 175 feet under existing conditions and will increase to 250 feet by the year 2045 with an increase in train traffic. The number of freight trains is assumed to increase, based on a projected 1.7 percent annual growth rate in freight traffic as per the 2018 California State Rail Plan. There are no plans to increase the number of Amtrak Coast Starlight passenger trains. These noise contours only apply to wheel track noise for trains traveling at distances greater than 0.25 mile from an at-grade crossing. The 65 dBA contour for horn blowing at the at-grade crossings along the main line is 387 feet under existing conditions and would increase to 444 feet under future conditions.

There is minimal freight traffic along the one spur in the City of Redding. The FRA estimates the train traffic to be 2 switching trains per day traveling at 10 mph. Since the trains are traveling at low rates of speed, the 65 dBA contour for train track noise is only 7 feet and the 65 dBA contour for horn blowing at grade crossings is 71 feet. For this study, it was assumed that the freight traffic along the spur would not increase by the year 2045 since there is only one customer along this line.

QUIET ZONES

The widths of the 65 dBA contours are fairly large at the eight at-grade crossings along the main line due to locomotive horn blowing and could pose a nuisance to future residents or occupants of the downtown area if building occurs within the 65 dBA contour. The dBA contours along the spur are relatively small and should not restrict new land use within this area.

The City may want to consider the potential implementation of Quiet Zones, especially in the downtown area. This would reduce the existing and future noise impacts from train horn soundings. Quiet Zones were implemented by Eugene Oregon for 10 crossings in the downtown area and residential surroundings, which is served by the same UP railroad line.

To qualify for a Quiet Zone, the City must comply with the regulations established by the FRA related to upgrading crossing safety devices and periodic reporting and would require concurrence of the California Public Utilities Commission (CPUC) and UP. Additional safety measures typically include four-quadrant gates, gates with raised medians or other channelization devices, or wayside horns. The required Supplemental Safety Measures (SSMs) are determined, based on the existing infrastructure, the number of trains/day, the speed of the trains, the size of the roadway crossing, the volume of traffic on the

roadway crossing, and historical safety data. The output is a Quiet Zone Risk Index score, which can be determined using the FRA's online Quiet Zone Calculator. The results allow the City to consider a variety of options in determining which SSMs make the most sense. The estimated cost per crossing typically ranges from $0.5 million to #2 million, depending on the SSMs that need to be installed.

Another alternative that is being explored is a railroad overpass in the downtown area that would eliminate the at-grade crossings and the need for locomotives to sound their horns.

REFERENCES

Federal Railroad Administration (FRA), 2022. FRA Safety Data and Reporting, Crossing and Inventory Data. Accessed at https://railroads.dot.gov/crossing-and-inventory-data/grade-crossing-inventory/801-query-location on April 6, 2022.

Amtrak, 2022. Coast Starlight Schedule. Effective October 12, 2020.

CalTrans, 2018. 2018 California State Rail Plan.

Northern California Railroad Production, 2022. Railfanning on the UP's Valley Subdivision. Train counts for 2018 and 2019.

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	104
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	4
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	45
Future Train Speed (mph)	45
Number of Existing Trains in one Direction	7
Number of Future Trains in one Direction	7
Existing Number of Day Trains (7 am to 10 p.m.)	5
Future Number of Day Trains (7 am to 10 p.m.)	5
Existing Number of Night Trains (10 p.m. to 7 am)	2
Future Number of Night Trains (10 p.m. to 7 am)	2
Existing Average Number of Cars	87
Future Average Number of Cars	87
Existing Average Number of Locomotives	4
Future Average Number of Locomotives	4

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

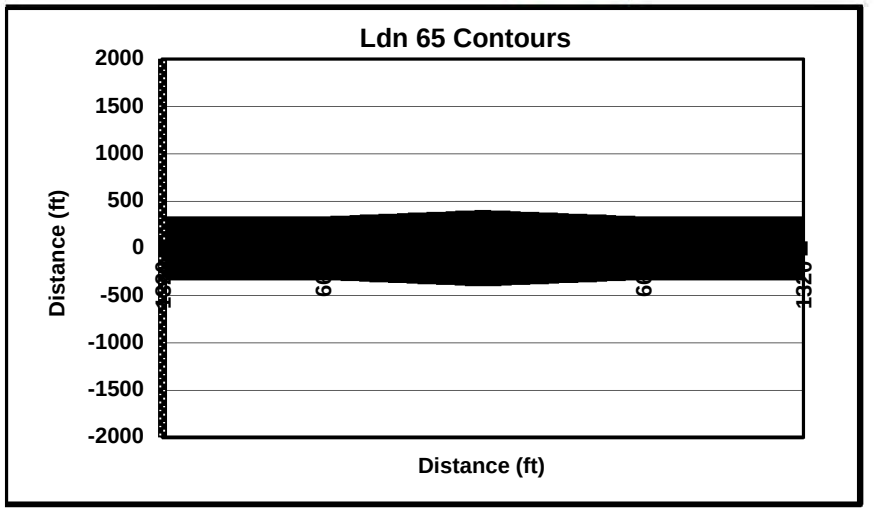
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

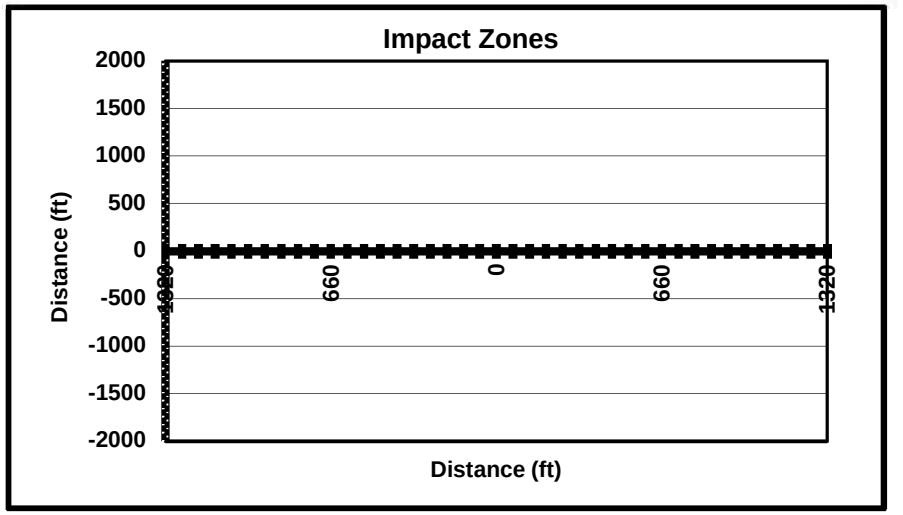
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	387
Future 65 Ldn Contour at X-ing	387
Existing 65 Ldn Contour at 1/2 zone length	319
Future 65 Ldn Contour at 1/2 zone length	319
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
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Case: UP Valley Subdivision - Existing Conditions

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	63	58
Source 1	61	58	53
Source 2	63	61	56
Source 3	51	32	45
Source 4	47	28	42
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	**Source 1**		**Source 2**		**Source 3**		**Source 4**	
Source Num.	Freight Locomotive	9	Freight Cars	10	Commuter Diesel Locomotive	2	Commuter Rail Cars	3
Distance (source to receiver)	distance (ft)	175	distance (ft)	175	distance (ft)	175	distance (ft)	175
Daytime Hours	speed (mph)	45	speed (mph)	45	speed (mph)	45	speed (mph)	45
(7 AM - 10 PM)	trains/hour	0.67	trains/hour	0.67	trains/hour	0	trains/hour	0
	locos/train	4	length of cars (ft) / train	6500	locos/train	2	cars/train	12
Nighttime Hours	speed (mph)	45	speed (mph)	45	speed (mph)	45	speed (mph)	45
(10 PM - 7 AM)	trains/hour	0.22	trains/hour	0.22	trains/hour	0.22	trains/hour	0.22
	locos/train	4	length of cars (ft) / train	6500	locos/train	2	cars/train	12
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%			% of cars w/ wheel flats	
Jointed Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Embedded Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Aerial Structure?	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Barrier Present?	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Intervening Rows of of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0

Source 5

Source 6	Source 7	Source 8

CALCULATIONS								
Term	Sou 1	Sou 2	Sou 3	Sou 4	Sou 5	Sou 6	Sou 7	Sou 8
SELref	97.0	100.0	92.0	82.0	0.0	0.0	0.0	0.0
C1 - Coef	10.0	20.0	-10.0	20.0	0.0	0.0	0.0	0.0
C1 - Denom	40.0	40.0	50.0	50.0	0.0	0.0	0.0	0.0
C1 - Day Num	45.00	45.00	45.00	45.00	0.00	0.00	0.00	0.00
C1 - Night Num	45.00	45.00	45.00	45.00	0.00	0.00	0.00	0.00
C1 - Day	0.5	1.0	0.5	-0.9	0.0	0.0	0.0	0.0
C1 - Night	0.5	1.0	0.5	-0.9	0.0	0.0	0.0	0.0
C2 - Coef	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0
C2 - Denom	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0
C2 - Day Num	0.67	0.67	0.01	0.01	0.00	0.00	0.00	0.00
C2 - Night Num	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00
C2 - Day	-1.7	-1.7	-20.0	-20.0	0.0	0.0	0.0	0.0
C2 - Night	-6.6	-6.6	-6.6	-6.6	0.0	0.0	0.0	0.0
C3 - Coef	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0
C3 - Denom	1.0	2000.0	1.0	1.0	0.0	0.0	0.0	0.0
C3 - Day Num	4.00	6500.00	2.00	12.00	0.00	0.00	0.00	0.00
C3 - Night Num	4.00	6500.00	2.00	12.00	0.00	0.00	0.00	0.00
C3 - Day	6.0	5.1	3.0	10.8	0.0	0.0	0.0	0.0
C3 - Night	6.0	5.1	3.0	10.8	0.0	0.0	0.0	0.0
Leq50ft - Day	66.2	68.8	39.9	36.3	0.0	0.0	0.0	0.0
Leq50ft - Night	61.4	64.0	53.3	49.7	0.0	0.0	0.0	0.0
Ldn50ft	68.9	71.5	59.1	55.5	6.4	6.4	6.4	6.4
Dist Coef	15.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0
Adj. Dist	-8.2	-8.2	-8.2	-8.2	0.0	0.0	0.0	0.0
Adj. Wheel Flats	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. Jointed	0	0	0	0	0	0	0	0
Adj. Embed	0	0	0	0	0	0	0	0

REFERENCE DATA		
Num	Desc	Ref SEL
0		0
1	Commuter Electric Locomotive	90
2	Commuter Diesel Locomotive	92
3	Commuter Rail Cars	82
4	RRT/LRT	82
5	AGT, Steel Wheel	80
6	AGT, Rubber Tire	78
7	Monorail	82
8	Maglev	72
9	Freight Locomotive	97
10	Freight Cars	100
11	Hopper Cars (empty)	104
12	Hopper Cars (full)	100
13	Crossover	100
14	Automobiles	73
15	City Buses	84
16	Commuter Buses	88
17	Rail Yard or Shop	118
18	Layover Tracks	109
19	Bus Storage Yard	111
20	Bus Op. Facility	114
21	Bus Transit Center	101
22	Parking Garage	92
23	Park & Ride Lot	101

	Term 1				Term 2				Term 3								Combine
Dist Term	Desc	Denom	Min	Coef	Desc	Denom	Min	Coef	Desc	Denom	Min	Coef	Jointed	Embedded	Aerial	Barrier	1&2?
0		0	0	0													
15	speed (mph)	50	20	10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	-10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10			4.0	-5.0	0.0
15	speed (mph)	40	20	10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
25	trains/hour	1	0.01	10.0	n of one trair	3600	0.01	10.0						3.0	4.0	-5.0	0.0
15	speed (mph)	50	30	28.1	vehicles/hour	1	0.01	10.0								-5.0	0.0
15	speed (mph)	50	30	23.9	vehicles/hour	1	0.01	10.0								-5.0	0.0
15	speed (mph)	50	30	14.6	vehicles/hour	1	0.01	10.0								-5.0	0.0
25	trains/hour	20	0.01	10.0												-5.0	0.0
25	trains/hour	1	0.01	10.0												-5.0	0.0
25	buses/hour	100	0.01	10.0												-5.0	0.0
25	buses/hour	200	0.01	10.0	es serviced/h	60	0.01	10.0								-5.0	1.0
25	buses/hour	20	0.01	10.0												-5.0	0.0
25	autos/hour	1000	0.01	10.0												-5.0	0.0
25	autos/hour	2000	0.01	10.0	buses/hour	24	0.01	10.0								-5.0	1.0

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	104
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	4
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	45
Future Train Speed (mph)	45
Number of Existing Trains in one Direction	10
Number of Future Trains in one Direction	10
Existing Number of Day Trains (7 am to 10 p.m.)	7.5
Future Number of Day Trains (7 am to 10 p.m.)	7.5
Existing Number of Night Trains (10 p.m. to 7 am)	2.5
Future Number of Night Trains (10 p.m. to 7 am)	2.5
Existing Average Number of Cars	114
Future Average Number of Cars	114
Existing Average Number of Locomotives	4
Future Average Number of Locomotives	4

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

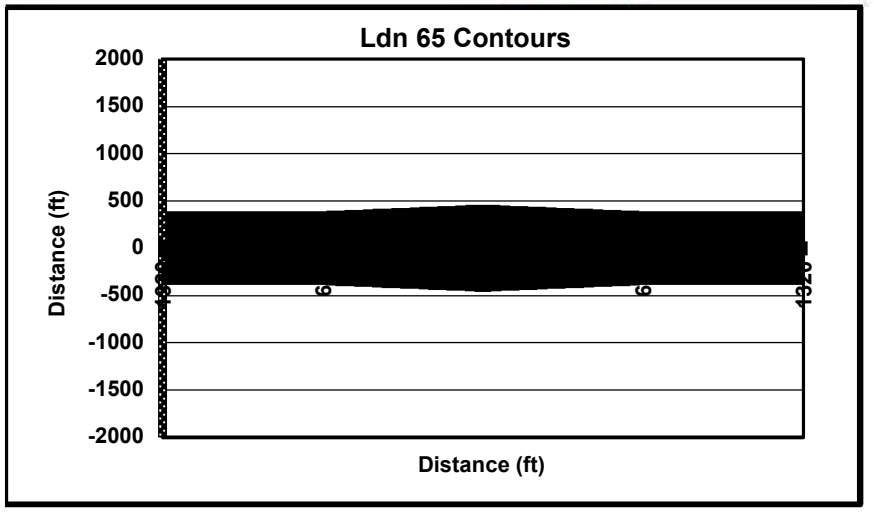
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

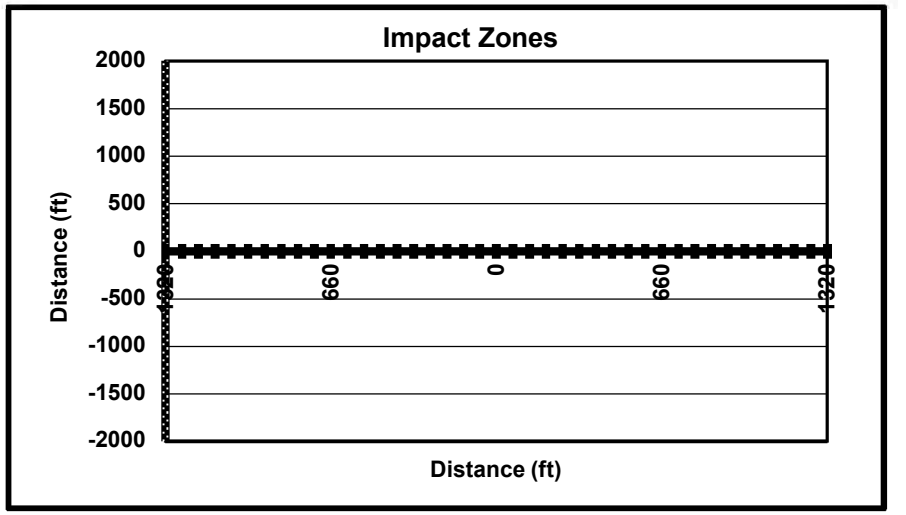
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	444
Future 65 Ldn Contour at X-ing	444
Existing 65 Ldn Contour at 1/2 zone length	374
Future 65 Ldn Contour at 1/2 zone length	374
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: UP Valley Subdivision - Future Conditions

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	63	58
Source 1	60	57	53
Source 2	64	61	56
Source 3	49	29	43
Source 4	45	26	39
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	**Source 1**		**Source 2**		**Source 3**		**Source 4**	
Source Num.	Freight Locomotive	9	Freight Cars	10	Commuter Diesel Locomotive	2	Commuter Rail Cars	3
Distance (source to receiver)	distance (ft)	250	distance (ft)	250	distance (ft)	250	distance (ft)	250
Daytime Hours	speed (mph)	45	speed (mph)	45	speed (mph)	45	speed (mph)	45
(7 AM - 10 PM)	trains/hour	1	trains/hour	1	trains/hour	0	trains/hour	0
	locos/train	4	length of cars (ft) / train	8125	locos/train	2	cars/train	12
Nighttime Hours	speed (mph)	45	speed (mph)	45	speed (mph)	45	speed (mph)	45
(10 PM - 7 AM)	trains/hour	0.33	trains/hour	0.33	trains/hour	0.22	trains/hour	0.22
	locos/train	4	length of cars (ft) / train	8125	locos/train	2	cars/train	12
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%			% of cars w/ wheel flats	
Jointed Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Embedded Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Aerial Structure?	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Barrier Present?	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Intervening Rows of of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0

Source 5

Source 6	Source 7	Source 8

CALCULATIONS								
Term	**Sou 1**	**Sou 2**	**Sou 3**	**Sou 4**	**Sou 5**	**Sou 6**	**Sou 7**	**Sou 8**
SELref	97.0	100.0	92.0	82.0	0.0	0.0	0.0	0.0
C1 - Coef	10.0	20.0	-10.0	20.0	0.0	0.0	0.0	0.0
C1 - Denom	40.0	40.0	50.0	50.0	0.0	0.0	0.0	0.0
C1 - Day Num	45.00	45.00	45.00	45.00	0.00	0.00	0.00	0.00
C1 - Night Num	45.00	45.00	45.00	45.00	0.00	0.00	0.00	0.00
C1 - Day	0.5	1.0	0.5	-0.9	0.0	0.0	0.0	0.0
C1 - Night	0.5	1.0	0.5	-0.9	0.0	0.0	0.0	0.0
C2 - Coef	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0
C2 - Denom	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0
C2 - Day Num	1.00	1.00	0.01	0.01	0.00	0.00	0.00	0.00
C2 - Night Num	0.33	0.33	0.22	0.22	0.00	0.00	0.00	0.00
C2 - Day	0.0	0.0	-20.0	-20.0	0.0	0.0	0.0	0.0
C2 - Night	-4.8	-4.8	-6.6	-6.6	0.0	0.0	0.0	0.0
C3 - Coef	10.0	10.0	10.0	10.0	0.0	0.0	0.0	0.0
C3 - Denom	1.0	2000.0	1.0	1.0	0.0	0.0	0.0	0.0
C3 - Day Num	4.00	8125.00	2.00	12.00	0.00	0.00	0.00	0.00
C3 - Night Num	4.00	8125.00	2.00	12.00	0.00	0.00	0.00	0.00
C3 - Day	6.0	6.1	3.0	10.8	0.0	0.0	0.0	0.0
C3 - Night	6.0	6.1	3.0	10.8	0.0	0.0	0.0	0.0
Leq50ft - Day	67.9	71.5	39.9	36.3	0.0	0.0	0.0	0.0
Leq50ft - Night	63.1	66.7	53.3	49.7	0.0	0.0	0.0	0.0
Ldn50ft	70.6	74.2	59.1	55.5	6.4	6.4	6.4	6.4
Dist Coef	15.0	15.0	15.0	15.0	0.0	0.0	0.0	0.0
Adj. Dist	-10.5	-10.5	-10.5	-10.5	0.0	0.0	0.0	0.0
Adj. Wheel Flats	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. Jointed	0	0	0	0	0	0	0	0
Adj. Embed	0	0	0	0	0	0	0	0

REFERENCE DATA		
Num	**Desc**	**Ref SEL**
0		0
1	Commuter Electric Locomotive	90
2	Commuter Diesel Locomotive	92
3	Commuter Rail Cars	82
4	RRT/LRT	82
5	AGT, Steel Wheel	80
6	AGT, Rubber Tire	78
7	Monorail	82
8	Maglev	72
9	Freight Locomotive	97
10	Freight Cars	100
11	Hopper Cars (empty)	104
12	Hopper Cars (full)	100
13	Crossover	100
14	Automobiles	73
15	City Buses	84
16	Commuter Buses	88
17	Rail Yard or Shop	118
18	Layover Tracks	109
19	Bus Storage Yard	111
20	Bus Op. Facility	114
21	Bus Transit Center	101
22	Parking Garage	92
23	Park & Ride Lot	101

	Term 1				Term 2				Term 3								Combine
Dist Term	Desc	Denom	Min	Coef	Desc	Denom	Min	Coef	Desc	Denom	Min	Coef	Jointed	Embedded	Aerial	Barrier	1&2?
0		0	0	0													
15	speed (mph)	50	20	10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	-10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10			4.0	-5.0	0.0
15	speed (mph)	40	20	10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
25	trains/hour	1	0.01	10.0	n of one trair	3600	0.01	10.0						3.0	4.0	-5.0	0.0
15	speed (mph)	50	30	28.1	vehicles/hour	1	0.01	10.0								-5.0	0.0
15	speed (mph)	50	30	23.9	vehicles/hour	1	0.01	10.0								-5.0	0.0
15	speed (mph)	50	30	14.6	vehicles/hour	1	0.01	10.0								-5.0	0.0
25	trains/hour	20	0.01	10.0												-5.0	0.0
25	trains/hour	1	0.01	10.0												-5.0	0.0
25	buses/hour	100	0.01	10.0												-5.0	0.0
25	buses/hour	200	0.01	10.0	es serviced/h	60	0.01	10.0								-5.0	1.0
25	buses/hour	20	0.01	10.0												-5.0	0.0
25	autos/hour	1000	0.01	10.0												-5.0	0.0
25	autos/hour	2000	0.01	10.0	buses/hour	24	0.01	10.0								-5.0	1.0

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	104
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	4
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	10
Future Train Speed (mph)	10
Number of Existing Trains in one Direction	1
Number of Future Trains in one Direction	1
Existing Number of Day Trains (7 am to 10 p.m.)	1
Future Number of Day Trains (7 am to 10 p.m.)	1
Existing Number of Night Trains (10 p.m. to 7 am)	0
Future Number of Night Trains (10 p.m. to 7 am)	0
Existing Average Number of Cars	10
Future Average Number of Cars	10
Existing Average Number of Locomotives	2
Future Average Number of Locomotives	2

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

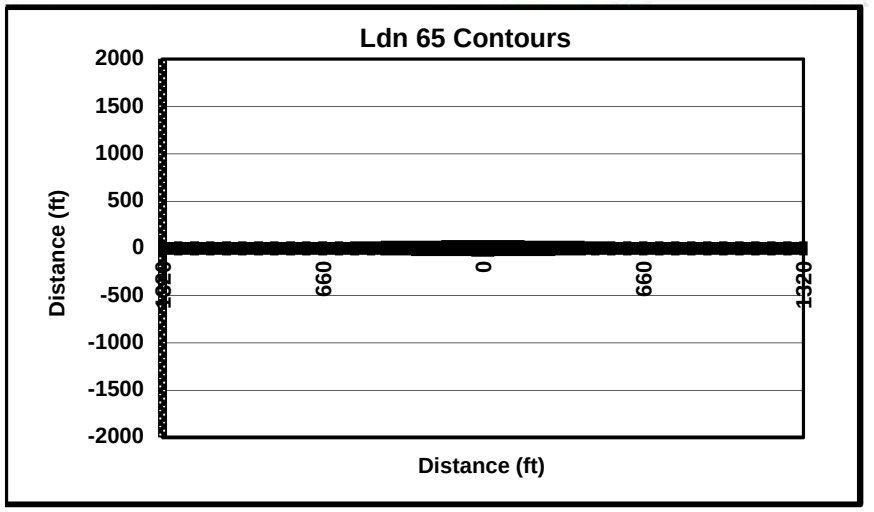
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

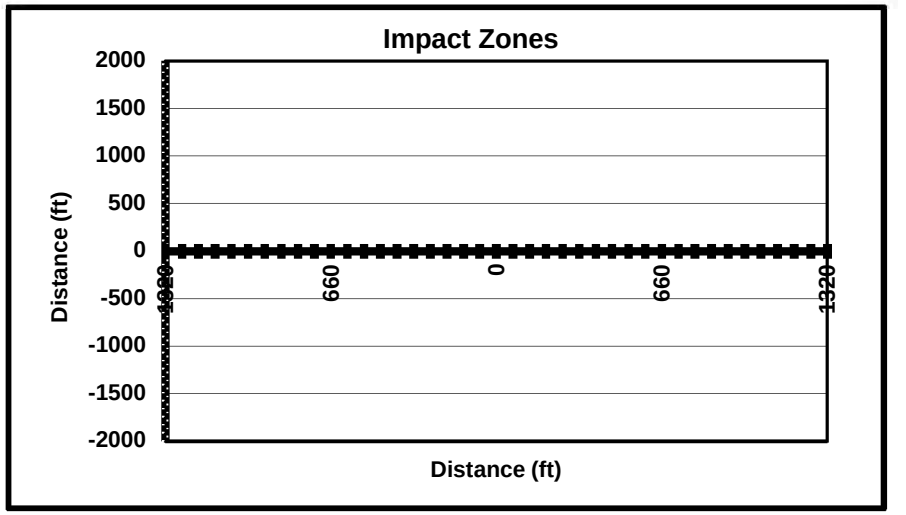
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	71
Future 65 Ldn Contour at X-ing	71
Existing 65 Ldn Contour at 1/2 zone length	49
Future 65 Ldn Contour at 1/2 zone length	49
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: UP Valley Subdivision

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	67	51
Source 1	64	65	51
Source 2	58	60	34
Source 3	0	0	0
Source 4	0	0	0
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS						
Parameter	**Source 1**		**Source 2**		**Source 3**	
Source Num.	Freight Locomotive	9	Freight Cars	10		
Distance (source to receiver)	distance (ft)	7	distance (ft)	7		
Daytime Hours	speed (mph)	10	speed (mph)	10		
(7 AM - 10 PM)	trains/hour	0.13	trains/hour	0.13		
	locos/train	2	length of cars (ft) / train	1300		
Nighttime Hours	speed (mph)	10	speed (mph)	10		
(10 PM - 7 AM)	trains/hour	0	trains/hour	0		
	locos/train	0	length of cars (ft) / train	0		
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%		
Jointed Track?	Y/N	n	Y/N	n		
Embedded Track?	Y/N	n	Y/N	n		
Aerial Structure?	Y/N	n	Y/N	n		
Barrier Present?	Y/N	n	Y/N	n		
Intervening Rows of of Buildings	number of rows	0	number of rows	0		

Source 4		Source 5	

Source 6	Source 7	Source 8

CALCULATIONS								
Term	**Sou 1**	**Sou 2**	**Sou 3**	**Sou 4**	**Sou 5**	**Sou 6**	**Sou 7**	**Sou 8**
SELref	97.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
C1 - Coef	10.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0
C1 - Denom	40.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0
C1 - Day Num	20.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00
C1 - Night Num	20.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00
C1 - Day	-3.0	-6.0	0.0	0.0	0.0	0.0	0.0	0.0
C1 - Night	-3.0	-6.0	0.0	0.0	0.0	0.0	0.0	0.0
C2 - Coef	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
C2 - Denom	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
C2 - Day Num	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00
C2 - Night Num	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
C2 - Day	-8.9	-8.9	0.0	0.0	0.0	0.0	0.0	0.0
C2 - Night	-20.0	-20.0	0.0	0.0	0.0	0.0	0.0	0.0
C3 - Coef	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
C3 - Denom	1.0	2000.0	0.0	0.0	0.0	0.0	0.0	0.0
C3 - Day Num	2.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00
C3 - Night Num	1.00	40.00	0.00	0.00	0.00	0.00	0.00	0.00
C3 - Day	3.0	-1.9	0.0	0.0	0.0	0.0	0.0	0.0
C3 - Night	0.0	-17.0	0.0	0.0	0.0	0.0	0.0	0.0
Leq50ft - Day	52.5	47.6	0.0	0.0	0.0	0.0	0.0	0.0
Leq50ft - Night	38.4	21.4	0.0	0.0	0.0	0.0	0.0	0.0
Ldn50ft	51.4	45.7	6.4	6.4	6.4	6.4	6.4	6.4
Dist Coef	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. Dist	12.8	12.8	0.0	0.0	0.0	0.0	0.0	0.0
Adj. Wheel Flats	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. Jointed	0	0	0	0	0	0	0	0
Adj. Embed	0	0	0	0	0	0	0	0

REFERENCE DATA		
Num	**Desc**	**Ref SEL**
0		0
1	Commuter Electric Locomotive	90
2	Commuter Diesel Locomotive	92
3	Commuter Rail Cars	82
4	RRT/LRT	82
5	AGT, Steel Wheel	80
6	AGT, Rubber Tire	78
7	Monorail	82
8	Maglev	72
9	Freight Locomotive	97
10	Freight Cars	100
11	Hopper Cars (empty)	104
12	Hopper Cars (full)	100
13	Crossover	100
14	Automobiles	73
15	City Buses	84
16	Commuter Buses	88
17	Rail Yard or Shop	118
18	Layover Tracks	109
19	Bus Storage Yard	111
20	Bus Op. Facility	114
21	Bus Transit Center	101
22	Parking Garage	92
23	Park & Ride Lot	101

	Term 1				Term 2				Term 3								Combine
Dist Term	Desc	Denom	Min	Coef	Desc	Denom	Min	Coef	Desc	Denom	Min	Coef	Jointed	Embedded	Aerial	Barrier	1&2?
0		0	0	0													
15	speed (mph)	50	20	10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	-10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10				-5.0	0.0
15	speed (mph)	50	20	20.0	trains/hour	1	0.01	10.0	cars/train	1	1	10			4.0	-5.0	0.0
15	speed (mph)	40	20	10.0	trains/hour	1	0.01	10.0	locos/train	1	1	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
15	speed (mph)	40	20	20.0	trains/hour	1	0.01	10.0	n of cars (ft) a	2000	40	10	5.0	3.0	4.0	-5.0	0.0
25	trains/hour	1	0.01	10.0	n of one trair	3600	0.01	10.0						3.0	4.0	-5.0	0.0
15	speed (mph)	50	30	28.1	vehicles/hour	1	0.01	10.0								-5.0	0.0
15	speed (mph)	50	30	23.9	vehicles/hour	1	0.01	10.0								-5.0	0.0
15	speed (mph)	50	30	14.6	vehicles/hour	1	0.01	10.0								-5.0	0.0
25	trains/hour	20	0.01	10.0												-5.0	0.0
25	trains/hour	1	0.01	10.0												-5.0	0.0
25	buses/hour	100	0.01	10.0												-5.0	0.0
25	buses/hour	200	0.01	10.0	es serviced/h	60	0.01	10.0								-5.0	1.0
25	buses/hour	20	0.01	10.0												-5.0	0.0
25	autos/hour	1000	0.01	10.0												-5.0	0.0
25	autos/hour	2000	0.01	10.0	buses/hour	24	0.01	10.0								-5.0	1.0

Appendices

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Appendix 5.15-1 Service Providers Questionnaires

PUBLIC SERVICE PROVIDERS QUESTIONNAIRES AND ANSWERS

FIRE DEPARTMENT

1. What is the Redding Fire Department's performance standard for responding to emergency calls and nonemergency calls within the service area (i.e., minutes to reach the call location)?

   Redding Fire Department has a performance measurement for emergency calls: a 90th percentile of 5:59 minutes, measured from the time of Dispatch to arrival. There is no performance measurement for non-emergency calls.

2. What is the current average response time (in minutes) for emergency and nonemergency calls?

   In 2022 Redding Fire maintained the following 50th percentile times.
   - Turnout-1:58
   - Travel- 4:13

3. Does the department have a metric for guiding increases in staff? (i.e. xxx personnel per 1,000 population)

   Redding Fire has never adopted a set matrix. Currently, positions are dictated by a budget set by the City Council. Fire Departments Nationwide usually use the matrix of 1.54-1.81 firefighters per 1000 people protected to determine base staffing models. Redding Fire current staffing model is 1.06 firefighters per 1000 covered. To meet the lower threshold of this matrix, Redding Fire would need to hire an additional forty-five firefighters.

   The City of Redding is located in a rural California region, bringing challenges to managing a fire department. The climate, topography, and population create a call volume that most metropolitan fire agencies have, but Redding does not have the resources that a metroplex provides. Redding Fire should adopt the matrix of 1.81 firefighters per 1000 served because the region lacks the resources to provide adequate mutual aid services to the City.

   Are the existing resources (personnel, equipment) adequate to serve the City under current conditions?

   No. However, the City Council has approved purchasing land for an additional fire station to house a Truck, Engine, and additional Battalion Chief near the intersection of Tarmc and Shasta View. In anticipation of the new station, Redding Fire has accepted a SAFER grant for an additional 12 positions that will increase staffing on several apparatus. Funding for the new station and remodeling of existing structures has yet to be determined.

   The City of Redding has many risks that cannot be adequately covered with the current staffing levels, equipment, or training. Redding Fire should strive to become an all-hazard agency. The City of Redding fire department has no high-angle rescue ability, limited building collapse ability, no confined space or trench rescue ability, and limited water rescue abilities. Redding Fire does provide a type II Hazardous materials response team. But due to the location, the team should be a type I.

The City of Redding's risks includes a primary rail line, Interstate 5, the Sacramento River, high and low rise structures, Regional Airport, earthquake fault lines, and the first City downstream from Shasta Dam.

4. Please summarize any additional resources (facilities, equipment, personnel) needed to serve future development under the 2023-2045 General Plan, which includes the potential addition of 19,439 residents to the City.

   Redding Fire has experienced a 43% increase to call volume over the last ten years. During that period, there has not been an increase in the number of engines or trucks within the system. The current system is at its maximum capacity and needs additional units to maintain an effective response force.

   The call volume is anticipated to continue to grow at the same rate as historical data indicates during the next ten-year plan. However, outside influences could dramatically change how Redding Fire delivers services. The current system uses private ambulance companies to provide BLS, and ALS transports within the City of Redding. In 2022 the ambulance providers responded to about 8000 additional calls within the city limits that did not require a fire department response. Fire and EMS use a criteria-based dispatched system to determine the severity of EMS calls. Redding Fire does not respond to what is specified as "Alpha" or "Omega" call types. If the private ambulance companies could no longer afford to provide service to the region, Redding fires call volume would exponentially increase overnight.

   The City of Redding has the opportunity to evaluate the current EMS system within the City and look at ways to stabilize and enhance the private-public partnership that is currently deployed within the region. Paramedic Engine companies, fire-based transport units, and community Paramedic programs are all possible solutions to a robust fire and ems response system.

   Fire Based Paramedics allow for enhanced services to the community by cross-trained employees that can provide fire suppression, technical rescue, and EMS services to the City of Redding. Redding Fire provides eight fire stations strategically placed within our community for optimal response times during an emergency.

   As the City of Redding increases its population and more residential and commercial properties are built. Additional units and stations will be required to meet the service demand. In addition, The Division of Community Risk Reduction (Prevention) will need more staffing to maintain the same level of service provided today.

5. Please provide any additional comments you may have regarding the proposed project.

POLICE DEPARTMENT

1. What is the Redding Police Department’s performance standard for responding to emergency calls and nonemergency calls within the service area (i.e., minutes to reach the call location)? Due to three different CAD/RMS systems since 2018, and the last one not accurately providing response times, we currently do not have an accurate picture of response times to priority calls. I have three interns working with our Crime Analyst to go through each call manually from 2022 to determine response times. I will not have this data for several months.

2. What is the current average response time (in minutes) for emergency and nonemergency calls? See above.

3. Does the department have a metric that guides increases in staff? (i.e. XX officers per 1,000 population) Officers vs. Population is an outdated matrix and can only be used as a guide. Especially when daytime populations are much higher than actual residents. We will look at call volume, response times (when we have them), officer free time (not handling calls) population, and daytime population to determine staffing levels. Only this year have we returned to staffing levels from 2007. We have not kept up with the growth of the City.

4. Are the existing resources (personnel, equipment) adequate to serve the City under current conditions? More staffing is needed on the patrol level, we have done well in the last few years adding community policing resources such as the Crisis Intervention Response Team (CIRT), Park Rangers and the Bike Team (total of 12 positions) and added an eighth beat (5 positions), however, additional patrol resources will be necessary to keep up with the growth of the city. The department does have unmet needs, including replacing patrol vehicles (supply chain and budget), additional rifles for the department, Taser replacements, and other equipment needs.

5. Does the department have plans to add more stations that would serve the City? No.

6. Please summarize any additional resources (facilities, equipment, personnel) needed to serve future development under the 2023-2045 General Plan buildout, which includes the potential addition of 19,439 new residents to the City. Additional staff and equipment to support the growth. My estimation, is an additional 10 officers for patrol (two beats) during the life of this EIR. Ten officers would require five additional patrol vehicles ($75k each in 2023), 10 radios($100k), and another $50k in individual officer equipment. Additional Community Service Officers (CSO's) may also be necessary.

7. Please provide any additional comments you may have regarding the proposed project.

LIBRARY

1. Are the existing library space and number of books considered adequate for the existing population within the Library's service area?

American Library Association recommends .4 -.5 square feet per resident for population size 120,000+ which is our service area for Redding Library with county residents. Good there.

   a) If not, what are the estimated deficits of:

   - Building area in square feet? Current is 56,860 sq feet, we are good with sq footage
   - Volumes or collection size? Spending per capita for Shasta Public Libraries is $14.12. The state average is $42.42. Per capita collection/volumes Shasta – 0.99 per capita. Recommended is 1.40 per capita. Need more books and more money for books.
   - Other resources (computers, etc.)?

2. What demand factors or standards are used to determine the amount of library space and number of volumes, or collection size, needed to serve a given population? Basic square foot data collected

from http://mnl.mclinc.org/wp-content/uploads/2013/05/spaceplanningguide.pdf and https://www.library.ca.gov/stats/?ReportType%5B%5D=All+Data&Year%5B%5D=FY21-22 for spending and volume counts

3. Are there any plans for future library expansion or new libraries that would potentially serve the proposed project? If so, could you share some details about the plans including the potential location? No plans for expansion

4. Please summarize any additional resources (facilities, staff) needed to serve future development under the 2023-2045 General Plan, which includes the potential addition of 19,439 new residents to the City. More money for books and programming.

5. Please provide any additional comments you may have regarding the proposed project.

PARKS AND RECREATION

1. Please confirm that the 2018 Redding Parks, Trails, and Open Space Master Plan contains the latest available information on the City's park system and future plans. Please provide any additional documents that may contain relevant information about the City's park inventory.

   No, it does not. We have made a few changes and I have updated the inventory. It will be attached to the email along with the trail inventory.

2. Please confirm or update the information regarding the City's Park standard:
   The City's Park standard, as indicated in the proposed Recreation Element of the 2023-2045 General Plan Update, is 10 acres of parkland per 1,000 residents.
   10 acres per 1,000 is the standard.

3. Are the existing parks and recreational facilities in the City adequate to serve the demands of the residents?

   No, for a few reasons.
   - The city is operating under its level of service standard.
   - The distribution of parks is not consistent with park access rule of ½-mile for all residents.
   - The facilities making up the park system are not up to the standards of the parks, trails and open space master plan. This includes facilities like fields, gymnasiums, courts, pools, etc.

4. Are the existing and planned parks and recreation facilities able to accommodate buildout of the proposed project, which includes an increase of approximately 19,439 additional residents in the City by 2045?

   This depends on the use of the word planned. We have only a few projects legitimately planned, which means funded/active projects, the other park areas are land holdings for future efforts. It is unlikely that the City will close the gap of facility distribution by 2045. Trails, too, will also change this figure.

5. Please provide any additional comments you may have regarding the proposed project.

WASTEWATER

1. Does the department currently meet the wastewater treatment and collection demands of its service area? Yes

2. How would the proposed project, which is expected to add an additional 19,439 residents to the City and SOI by 2045, affect the department's wastewater collection and treatment services? Would additional facilities/infrastructure be required to meet the service demands of the projected growth? Depending on the area of growth (tributary area), a modeling assessment of the projected flows and an evaluation of the loading at the respective treatment plant(s) would be required in order to determine what pipes would need to be upsized or what capacity improvements would need to be undertaken.

3. What mitigation measures, if any, would you recommend for the proposed project? Continue to conduct a Utility Master Plan approximately every ten (10) years to evaluate the collection system and treatment facilities for future needs. In addition to evaluating the Master Plan, design a rate structure and impact fee program to provide sufficient revenue for future projects as growth occurs.

4. Please provide any additional comments you may have regarding the proposed project. Specifics on the tributary growth areas and uses are needed to further evaluate the collection system and treatment facility needs.

WATER

1. Does the department currently meet the water supply, treatment and distribution demands of its service area? Yes

2. How would the proposed project, which is expected to add an additional 19,439 residents to the City and SOI by 2045, affect the department's ability to provide water supplies to its service area? Surface water supplies are adequate - additional groundwater wells may be needed to increase supply. Would additional facilities/infrastructure be required to meet the service demands of the projected growth? New groundwater wells and storage tank(s) may be needed.

3. What mitigation measures, if any, would you recommend for the proposed project? Continue to conduct a Utility Master Plan approximately every ten (10) years to evaluate the distribution system and treatment facilities for future needs. In addition to evaluating the Master Plan, design a rate structure and impact fee program to provide sufficient revenue for future projects as growth occurs. Some of the development will most likely occur outside of Redding's Water Service Area and will be served by either Bella Vista Water District or Centerville CSD.

4. Please provide any additional comments you may have regarding the proposed project. Specifics on the growth areas and uses are needed to further evaluate the distribution system and treatment facility needs.

SOLID WASTE

1. What additional sites, if any, are planned for solid waste disposal in the future?

No additional sites are planned at this time.

2. What generation rates are used to estimate solid waste service requirements for various land uses (residential, commercial, industrial) in pounds/day or tons/year?

Generation rates are based on similar or like businesses. Generation rates for residential use is based on current averages.

3. Is the City currently meeting AB 939 goals? Yes.

4. How would the proposed project, which is expected to add an additional 19,439 residents to the City and SOI by 2045, affect Redding Solid Waste Utility's solid waste collection and disposal services? Would additional facilities/infrastructure be required to meet the service demands of the projected growth?

Additional personnel and equipment would need to added and elements in the Facility Expansion Plan would need to be built to increase capacity. Regarding expansion, the Materials Recovery Facility would need to be updated to handle the increased volume and the food waste processing equipment would need to be in place. For these 2 projects to happen the new truck parking and container storage on the West side of Abernathy would need to be built.

5. What mitigation measures, if any, would you recommend for the proposed project?

The expansion plan needs be implemented as soon as possible.

6. Please provide any additional comments you may have regarding the proposed project.

Appendices

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