



2018 Regional Transportation Plan and Sustainable Communities Strategy for the Shasta Region

Initial Study

prepared by:

Shasta Regional Transportation Agency

1255 East Street, Suite 202

Redding, California, 96001

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prepared with the assistance of:

Rincon Consultants, Inc.

4825 J Street, Suite 200

Sacramento, California, 95819

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Initial Study

1. Project Title

2018 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) for the Shasta Region

2. Lead Agency Name and Address

Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, California 96001

3. Contact Person and Phone Number

Sean Tiedgen, Senior Transportation Planner
530-262-6185

4. Project Location

The proposed 2018 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) update involves the entirety of Shasta County and its incorporated cities, which are located at the geographical center and transportation crossroads of northern California. As shown in the regional location map in Figure 1, the County is situated at the north end of the Sacramento Valley, approximately 150 miles north of Sacramento and approximately 110 miles south of the Oregon border. Interstate 5 (I-5), one of California's major north-south routes, traverses the western portion of Shasta County. I-5 runs along the western side of the Sacramento River in the northern and southern portions of the county, crossing over the River to run along its eastern side between the City of Anderson and the unincorporated community of Lakehead. State Route 273 provides north and south connectivity parallel to I-5 on the western side of the Sacramento River between the Cities of Anderson and Redding before merging back into I-5 north of the River. State Routes 44 and 299 provide connectivity to the east and west. These major transportation corridors converge in the City of Redding, the county seat and the region's socio-economic center.

5. Project Sponsor's Name and Address

Shasta Regional Transportation Agency
1255 East Street, Suite 202
Redding, California 96001

6. Description of Project

The Shasta Regional Transportation Agency (SRTA), as both the federally-designated metropolitan planning organization (MPO) and the state-designated regional transportation planning agency (RTPA) for Shasta County, is required by federal and state law to prepare a long-range (at least 20 years) transportation planning document, known as a Regional Transportation Plan (RTP). The RTP is an action-oriented document used to achieve a coordinated and balanced regional transportation system. California Government Code §65080 et seq. and Title 23 United States Code (USC) §134 require RTPAs and MPOs to prepare long-range transportation plans to: 1) establish regional goals; 2) identify present and future needs, deficiencies, and constraints; 3) analyze potential solutions; 4) estimate available funding; and 5) propose investments. State statutes require that the RTP also serve as the foundation for the short-range transportation programming documents, known as the Regional and Federal Transportation Improvement Programs (RTIP and FTIP).

SRTA must update its Sustainable Communities Strategy (SCS) as part of the RTP update, pursuant to the requirements of California Senate Bill 375 (SB 375), as adopted in 2008. The SCS sets forth a forecasted development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, is intended to reduce greenhouse gas (GHG) emissions from passenger vehicles and light trucks to achieve the regional GHG reduction targets set by the California Air Resources Board (CARB). For the 2015 RTP, the CARB issued SRTA a regional GHG target of no increase in per capita GHG emissions for the planning years 2020 and 2035, as compared to baseline per capita emissions levels in 2005. The regional GHG reduction targets for the 2018 RTP/SCS will remain the same as the 2015 RTP due to no new targets being adopted by CARB at this time. SRTA recognizes that CARB is working on an update to the targets, has proposed new targets for years 2020 and 2035 and is anticipating presenting targets for adoption in March or April 2018. It is SRTA's understanding that the new targets, when adopted, may be in effect for SRTA's third RTP/SCS, which will be due in 2022.

Nonetheless, SB 375 specifically states that local governments retain their autonomy to plan local land use development and General Plan policies. The SCS, as a chapter within the RTP, is intended to provide a regional policy foundation that local governments may build upon, if they so choose. The RTP/SCS does not propose to change any land use and zoning designations; rather, the land use scenario envisioned by the RTP/SCS is based on and would be consistent with the existing local General Plan policies and land use designations as specified by the local agencies. As such, the RTP/SCS includes and accommodates the quantitative growth projections for the region based on the land use capacity of the local General Plans. SB 375 also requires that the RTP/SCS's forecasted development pattern for the region be consistent with the state-developed, five-year¹ regional housing needs as allocated to member jurisdictions through the Regional Housing Needs Allocation (RHNA) process under State housing law.

The 2018 RTP/SCS reflects changes in legislative requirements, local land use policies, and resource constraints since the most recent RTP was adopted on June 30, 2015. The 2018 update to the RTP/SCS is focused on implementation of the 2015 RTP, with minor updates to ensure consistency

¹ Please note that following the 2018 RTP and SCS, the RHNA process will move from a five-year to an eight-year cycle.

with federal, state and local planning requirements. The most notable changes that impact this RTP update include:

- California’s adoption of safety-related performance measures and targets in July and August 2017 as required under the MAP-21 and FAST Act transportation bills. This also requires MPO targets to be adopted within 180 days after State targets and they must be incorporated into the RTP, RTIP and FTIP;
- Draft guidelines from the Governor’s Office of Planning and Research for SB 743 (Steinberg, 2013), which is nearing adoption;
- New funding for transportation projects through California’s recently approved Road Repair and Accountability Act of 2017 (SB 1) for the next ten years;
- Minor updates to transportation projects and land use development (specifically focused on growth that has taken place since the last RTP); and
- Addition of components to the RTP to address freight and alternative fuel vehicles, including electric vehicles and autonomous vehicles.

The 2018 RTP/SCS shows how SRTA will meet the transportation needs of the region for the period from 2018 to 2040, considering existing and projected future land use patterns as well as forecasted population and job growth. The 2018 RTP/SCS plans for and programs revenues expected to be available to SRTA from all transportation funding sources over the course of the planning period. It identifies and prioritizes expenditures of anticipated funding for transportation projects that involve all transportation modes: highways; streets and roads; transit; rail; active transportation (bicycle and pedestrian); aviation; as well as transportation demand management (TDM) and transportation system management (TSM). The 2018 RTP project list will update the 2015 RTP project list by removing projects that have been completed since 2015, modifying some projects that continue to be on the list based on new information, and adding approximately 35 net new minor projects to the list. None of the modified or new projects on the 2018 RTP/SCS list would be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is similar to that contained in the 2015 RTP. Therefore, it is anticipated that the 2018 RTP/SCS would result in similar impacts to those projects contained in the 2015 RTP.

7. Surrounding Land Uses and Setting

Shasta County is bordered by Trinity County to the west, Siskiyou County to the north, Modoc County to the northeast, Lassen County to the east, Plumas County to the southeast, and Tehama County to the south.

8. Other Public Agencies Whose Approval is Required

Approval of the RTP/SCS is at the discretion of the SRTA Board of Directors. Additional environmental review will be conducted by the responsible lead agency prior to implementation of individual projects contained within the RTP/SCS. Lead agencies would include the following:

- California Department of Transportation (Caltrans);
- California Transportation Commission (CTC);
- California Public Utilities Commission’s Rail Crossings Engineering Section (RCES);
- Cities of: Redding, Anderson, and Shasta Lake;

- County of Shasta;
- Federal Land Management Agencies (FLMA) - Bureau of Land Management (BLM), the Fish and Wildlife Service (FWS), the National Park Service (NPS) and the Forest Service;
- Federal Railroad Administration (FRA);
- Redding Area Bus Authority (RABA); and
- Local transit providers and airport operators.

9. Type of Environmental Document

Pursuant to CEQA Statute §21166, the appropriate CEQA documentation for the 2018 RTP/SCS will be a Supplement to the 2015 RTP EIR. The analysis that follows in this document will serve as an Initial Study for a Supplemental EIR (SEIR) that evaluates the potential impacts associated with the minor additions or changes to the previous 2015 RTP. An SEIR is the appropriate level of CEQA documentation for several reasons. First, the 2018 RTP/SCS would incorporate new requirements and regulations such as safety-related performance measures and targets under the FAST Act transportation bill and draft guidelines from the Governor's Office of Planning and Research for California's SB 743 (Steinberg 2013). While these new components are necessary, they are not anticipated to substantially increase the severity of impacts identified in the previous 2015 RTP EIR. Second, new funding for transportation projects through California's recently approved Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1) may help accelerate some regional/local projects over the next ten years. Lastly, the RTP will include new topics focused on freight, electric vehicles and autonomous vehicles. All of these components are anticipated to result in only minor updates to transportation projects and land use development in the RTP and SCS (specifically focused on growth that has taken place since the last RTP).

Accordingly, this Initial Study and the SEIR will focus on the physical effects of the incremental changes to RTP/SCS policies, projects, or growth scenarios, and will address any new or more severe impacts that would occur due to the updated baseline physical and regulatory conditions, since certification of the 2015 RTP EIR. This Initial Study serves as a preliminary review of the environmental impacts analyzed in the 2015 RTP EIR to determine what issue areas require further review in the 2018 RTP/SCS SEIR. For any issue areas where impacts would be similar to or less than the impact level identified in the previous EIR, no further analysis beyond this Initial Study is warranted (and is noted as such in this Initial Study). If previous mitigation measures from the 2015 RTP still apply and would reduce impacts to a less than significant level, those measures are listed in this Initial Study in the same manner as in the 2015 RTP EIR. Revisions to the mitigation measures include the replacement of "2015 RTP" with "2018 RTP/SCS" along with minor clarification and revisions, as directed by SRTA. For those environmental issue areas that may result in an increased level of impact or a potential change in impact level from the 2015 RTP EIR, based on new information or changes to regulations since the 2015 RTP EIR, those issue areas are identified in this Initial Study as requiring further review in the forthcoming SEIR.

Figure 1 Regional Location



Imagery and basemap layers provided by ESRI and its licensors © 2017.

Environmental Factors Potentially Affected

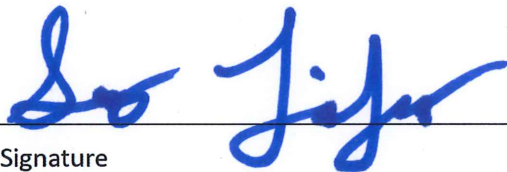
This project would potentially affect the environmental factors checked below, involving at least one impact that is “Potentially Significant” or “Potentially Significant Unless Mitigation Incorporated” as indicated by the checklist on the following pages.

- | | | |
|---|--|--|
| ■ Aesthetics | ■ Agriculture and Forestry Resources | ■ Air Quality |
| ■ Biological Resources | ■ Cultural Resources | ■ Geology and Soils |
| ■ Greenhouse Gas Emissions | ■ Hazards and Hazardous Materials | ■ Hydrology and Water Quality |
| ■ Land Use and Planning | ☐ Mineral Resources | ■ Noise |
| ☐ Population and Housing | ☐ Public Services | ☐ Recreation |
| ■ Transportation/Traffic | ■ Tribal Cultural Resources | ☐ Utilities and Service Systems |
| ■ Mandatory Findings of Significance | ■ Energy | ☐ Environmental Justice |

Determination

Based on this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☒ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

Sean Tiedgen

Printed Name



Date

Senior Transportation Planner

Title

Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☒	☐	☐
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☒	☐	☐
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☒	☐	☐

- a. *Would the project have a substantial adverse effect on a scenic vista?*
- b. *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*
- c. *Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*
- d. *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Shasta County has not identified any new scenic highways or scenic view corridors since adoption of the 2015 RTP (Shasta County 2004 and Caltrans 2011). Transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. As a result, no new or substantially more severe effects would occur related to scenic vistas, scenic resources, or scenic highways compared

to the 2015 RTP. Transportation projects in the 2018 RTP and the 2018 SCS land use scenario would not result in any lighting impacts beyond those discussed in the 2015 RTP EIR. The following mitigation measures identified in the 2015 RTP EIR would minimize long-term visual impacts generated by proposed transportation improvements and land use patterns near scenic corridors and lighting impacts near sensitive receptors. No new or revised mitigation measures are required and further analysis in an EIR is not warranted.

- AES-1(a)** Where a particular 2018 RTP transportation improvement project affects adjacent landforms, the project sponsor shall ensure that recontouring provides a smooth and gradual transition between modified landforms and existing grade.
- AES-1(b)** The project sponsor shall ensure that landscaping is installed to restore natural features along corridors after widening, interchange modifications, realignment, or construction of ancillary facilities. Associated landscape materials and design shall enhance landform variation, provide erosion control, and blend with the natural setting. To ensure compliance with approved landscape plans, the implementing agency shall provide a performance security equal to the value of the landscaping/irrigation installation.
- AES-1(c)** The project sponsor shall ensure that a project in a scenic view corridor will have the minimum possible impact upon foliage, existing landscape architecture and natural scenic views, consistent with project goals.
- AES-1(d)** Potential noise impacts arising from increased traffic volumes associated with adjacent land development shall be preferentially mitigated through the use of setbacks and the acoustical design of adjacent proposed structures. The use of sound walls, or any other architectural features that could block views from the scenic highways or other view corridors, shall be discouraged to the extent possible. Where use of sound walls is found to be necessary, walls shall incorporate offsets, accents, and landscaping to prevent monotony. In addition, sound walls should be complementary in color and texture to surrounding natural features.
- AES-2(a)** Roadway extensions and widenings shall avoid the removal of existing mature trees to the extent possible. The loss of trees that are protected by local agencies shall be replaced at a minimum 2:1 basis and incorporated into the landscaping design for the roadway. The project sponsor of a particular 2018 RTP/SCS project shall ensure the continued vitality of replaced trees through periodic maintenance (see Mitigation Measure **B-1(j)** prescribed under Biological Resources.)
- AES-2(b)** Roadway lighting shall be minimized to the extent possible, and shall not exceed the minimum height requirements of the local jurisdiction in which the project is proposed. This may be accomplished through the use of hoods, low intensity lighting, and using as few lights as necessary to achieve the goals of the project.
- AES-2(c)** Bus shelters and other ancillary facilities constructed as part of roadway improvements under the 2018 RTP/SCS shall be designed in accordance with the architectural review requirements of the local jurisdiction in which the project is proposed.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	■	☐	☐	☐
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	■	☐	☐	☐
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	■	☐
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	■	☐
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	■	☐	☐	☐

According to the Shasta County *2016 Crop and Livestock Report* (2016), the 2016 value of agricultural products produced in Shasta County increased slightly from 2015 to a total value of \$81,133,000 USD. The county experienced a drop in livestock value; however, this drop in value was offset by an increase in the value of nursery stock (Shasta County 2016). The nursery stock saw a 118 percent increase in overall value from the previous year due to an increase in both acreage and value of strawberry nursery plants, resulting in an overall value of more than \$14 million USD (Shasta County 2016). The California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program (FMMP) 2016 Field Report for Shasta County also reports changes in farmland conversion from 2014 through 2016. According to the FMMP 2016 Field Report, no significant conversions from irrigated farmland to urban land took place between 2014 and 2016 (DOC 2016).

In addition, no areas of concern for future FMMP updates have been identified in the 2016 Field Report (DOC 2016).

- a. *Would the project convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*
- b. *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*
- e. *Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?*

Transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. None of these projects would be located on lands that are mapped as Farmland and thus would not result in additional conversion of Farmland beyond what was analyzed in the 2015 RTP EIR. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. As a result, the 2018 RTP/SCS would not introduce any new or substantially more severe impacts related to agricultural resources.

Nonetheless, implementation of the 2015 RTP had the potential to result in the conversion of agricultural lands including Prime Farmland and lands under Williamson Act contract to non-agricultural uses, resulting in the need for the mitigation measures listed below. The SRTA recommends that individual project lead agencies implement the following mitigation measures, from the Land Use Section of the 2015 RTP EIR, for applicable transportation projects that may result in impacts to agricultural lands. Project-specific environmental impact analyses conducted by a lead agency for an applicable transportation project may require these mitigation measures be revised or expanded in response to site-specific conditions. Because impacts to individual Prime Farmland and lands under Williamson Act contract cannot be determined at this time and would be identified by individual project environmental reviews, impacts to agricultural resources would remain potentially significant. However, as described above, impacts from the 2018 RTP/SCS would not result in new significant effects or result in a substantial increase to the impacts previously identified in the 2015 RTP EIR.

- LU-5(a)** When new roadway extensions or widenings are planned, the project lead agency should assure that project-specific environmental reviews consider alternative alignments that reduce or avoid impacts to Prime Farmlands.
- LU-5(b)** Rural roadway alignments shall follow property lines to the extent feasible, to minimize impacts to the agricultural production value of any specific property. Farmers should be compensated for the loss of agricultural production at the margins of lost property, based on the amount of land deeded as road right-of-way, as a function of the total amount of production on the property.
- LU-5(c)** Individual project lead agencies should consider corridor realignment, buffer zones, setbacks, and fencing to reduce conflict between agricultural lands and neighboring uses.

- LU-5(d)** Quantify potential for direct conversion of Important Farmland using the Land Evaluation and Site Assessment (LESA) model or a similar quantitative tool.
- LU-5(e)** Compensate for conversion impacts to Prime Farmland by purchasing agricultural conservation easements (ACE) or funding the acquisition of agricultural mitigation lands through an appropriate land trust.
- LU-5(f)** Individual project lead agencies should conduct an analysis of potential conflicts with Williamson Act contracts at the project level, consistent with the State CEQA Guidelines. If the impacts of the proposed roadway projects on Williamson Act contract lands are determined to be significant, implement the following measures to reduce the impacts to a less than significant level:
- Design the proposed roadway projects to avoid or minimize the displacement of current and reasonably foreseeable agricultural operations from affected Williamson act contract lands.
 - Where it has been determined that cancellation of a Williamson Act contract for a parcel, or a portion of a parcel, may result in impacts to Prime or Important Farmland, Mitigation Measure **AQ-1** shall be implemented.

POTENTIALLY SIGNIFICANT IMPACT

- c. *Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*
- d. *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

The land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP, which does not propose to change any land use and zoning designations; rather, the land use scenario envisioned by the RTP is based on and would be consistent with the existing local General Plan policies and land use designations as specified by the local agencies. As such, transportation improvement projects and the land use scenario envisioned by the 2018 RTP/SCS would not conflict with existing zoning for, or cause rezoning of, forest land, timberland or timberland zoned Timberland Production; or result in the loss of forest land or conversion of forest land to non-forest use. Impacts from the 2018 RTP/SCS would be similar to the 2015 RTP and would not involve new or substantially more severe impacts related to agricultural or forestry resources. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	■	☐	☐	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	■	☐	☐	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	■	☐	☐	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	■	☐	☐	☐
e. Create objectionable odors affecting a substantial number of people?	■	☐	☐	☐

- a. *Would the project conflict with or obstruct implementation of the applicable air quality plan?*
- b. *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*
- c. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?*
- d. *Would the project expose sensitive receptors to substantial pollutant concentrations?*
- e. *Would the project create objectionable odors affecting a substantial number of people?*

In order to determine the magnitude of individual and cumulative emissions resulting from transportation improvement projects and the land use scenario envisioned by the 2018 RTP/SCS, and to discern whether these emissions exceed those identified in the previous RTP EIR, updated emissions analysis would be required. As such, SRTA will examine each of the air quality checklist questions in the Supplemental EIR. New modeling will be conducted to quantify emissions and determine whether the 2018 RTP/SCS would have a significant impact on air quality. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather all are considered potentially significant until a detailed analysis is prepared in the Supplemental EIR.

POTENTIALLY SIGNIFICANT IMPACT

4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d. 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?	☒	☐	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

For the purpose of this Initial Study, special status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (FESA); those listed or proposed for listing as rare, threatened, or endangered by the CDFW under the California Endangered Species Act (CESA); animals designated as “Species of Special Concern,” “Fully Protected,” or “Watch List” by the CDFW; and plants with a California Rare Plant Rank (CRPR) of 1, 2, 3, and 4. New queries of the USFWS Environmental Conservation Online System (ECOS): Information, Planning and Conservation System (IPaC) (USFWS 2017a), USFWS Critical Habitat Portal (USFWS 2017b), California Natural Diversity Database (CNDDDB) (California Department of Fish and Wildlife 2017), National Oceanic and Atmospheric Administration (NOAA) species map and data (NOAA 2013), and California Native Plant Society (CNPS) *Online Inventory of Rare, Threatened and Endangered Plants of California* (CNPS 2017) were conducted as part of this Initial Study analysis. The queries were conducted to obtain comprehensive information regarding state and federally listed species, sensitive communities and federally designated Critical Habitat known to or considered to have potential to occur within Shasta County as a comparison to the queries conducted for the 2015 RTP EIR.

- a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?*
- b. *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*
- e. *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

Eight natural communities considered sensitive by the CDFW occur within Shasta County. Federally designated critical habitat for eight species also occurs in Shasta County. These sensitive communities and critical habitats are listed in Appendix A. The same eight sensitive natural communities and critical habitat for eight species were identified for Shasta County in the 2015 RTP EIR. The exact location of these communities and critical habitats may have changed somewhat since the 2015 EIR; however, the Biological Resources Screening and Assessment measures described below would identify the presence of sensitive natural communities and critical habitats within specific 2018 RTP/SCS projects.

Moreover, transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP, which were analyzed in the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. This land use scenario primarily encourages infill development within existing urbanized areas. Therefore, no new or substantially more severe effects would occur related to impacts to special status plant and animal species compared to the 2015 RTP, as evaluated in the 2015 EIR, and existing mitigation measures identified in the 2015 RTP EIR would sufficiently reduce potential impacts to biological resources to less than significant levels.

Shasta County is home to several species protected by federal and state agencies. Special-status animal species can be found in a variety of habitat types the county provides. The CNDDDB (CDFW, 2017), CNPS (2017), NOAA (2013), and USFWS ECOS IPaC (2017) together list special status plant (193 species) and animal (111 species) that are known to or with potential to occur within Shasta County. These numbers have increased since the 2015 EIR by 89 plants and 38 animals. This increase is due to the change in status for some species as well as additional records submitted to the CNDDDB since 2015. These new species are similar to those previously considered in the 2015 EIR, in that many have very specific habitat requirements, generally comprised of native vegetation communities and undisturbed habitats. Moreover, transportation improvement projects contained in the 2018 RTP/SCS would not substantially differ from those contained in the 2015 RTP regarding the projects' location, type, or magnitude as described above. Because of the programmatic nature of the 2015 RTP, the corresponding mitigation measures were designed to cover a wide variety of special status plants, animals, and sensitive communities. Therefore, impacts associated with transportation improvement projects contained in the 2018 RTP/SCS would not substantially differ from those analyzed for the 2015 RTP. Mitigation measures from the 2015 EIR, as shown below, would apply to applicable transportation projects. Therefore, impacts would be less than significant with mitigation and further analysis in an EIR is not warranted.

B-1(a) Biological Resources Screening and Assessment. Because of the programmatic nature of the 2018 RTP and specific impacts for a given project are unknown at this time, on a project-by-project basis upon completion of final design, a preliminary biological resource screening shall be performed as part of the environmental review process to determine whether the project has any potential to impact biological resources. If it is determined that the project has no potential to impact biological resources, no further action is required. If the project would have the potential to impact biological resources, prior to construction, a qualified biologist shall conduct a biological resources assessment (BRA) or similar type of study to document the existing biological resources within the project footprint plus a buffer and to determine the potential impacts to those resources. The BRA shall evaluate the potential for impacts to all biological resources including, but not limited to special status species, nesting birds, wildlife movement, corridors, potential for installation or retrofitting of existing structures for wildlife movement corridors, evaluation of culverts or other watercourse structures to remove barriers to fish passage, sensitive plant communities/critical habitat, and other resources judged to be sensitive by local, state, and/or federal agencies. Pending the results of the BRA, design alterations, further technical studies (i.e. protocol surveys) and/or consultations with the USFWS, CDFW, NMFS and/or other local, state, and federal agencies may be required. The following mitigation measures [B-1(b) through B-1(i)] shall be incorporated, only as applicable, into the BRA for projects where specific resources are present or may be present and impacted by the project. Note that specific surveys described in the mitigation measures below may be completed as part of the BRA where suitable habitat is present.

B-1(b) Special-Status Plant Species Surveys. If completion of the project-specific BRA determines that special status plant species may occur on-site, surveys for special status plants shall be completed prior to any vegetation removal, grubbing, or other construction activity of each segment (including staging and mobilization). The surveys shall be floristic in nature and shall be seasonally timed to coincide with the target species identified in the project-specific BRA. All plant surveys shall be

conducted by a qualified biologist approved by the implementing agency no more than two years before initial ground disturbance. All special status plant species identified on-site shall be mapped onto a site-specific aerial photograph and topographic map. Surveys shall be conducted in accordance with the most current protocols established by the CDFW, USFWS, and the local jurisdictions if said protocols exist. A report of the survey results shall be submitted to the implementing agency, and the CDFW and/or USFWS, as appropriate, for review and approval.

B-1(c) Special-Status Plant Species Avoidance, Minimization, and Mitigation. If state listed or California Rare Plant List 1B species are found during special status plant surveys [pursuant to mitigation measure BIO-2], then the project shall be re-designed to avoid impacting these plant species, if feasible. Rare plant occurrences that are not within the immediate disturbance footprint, but are located within 50 feet of disturbance limits shall have bright orange protective fencing installed at least 30 feet beyond their extent, or other distance as approved by a qualified biologist, to protect them from harm.

B-1(d) Restoration and Monitoring. If special status plants species cannot be avoided and will be impacted by a project implemented under the 2018 RTP, all impacts shall be mitigated at a minimum ratio of 2:1 (number of acres/individuals restored to number of acres/individuals impacted) for each species as a component of habitat restoration. A restoration plan shall be prepared and submitted to the jurisdiction overseeing the project for approval. (Note: if a state listed plant species will be impacted, the restoration plan shall be submitted to the CDFW for approval). The restoration plan shall include, at a minimum, the following components:

- Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type).
- Goal(s) of the compensatory mitigation project [type(s) and area(s) of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type(s) to be established, restored, enhanced, and/or preserved].
- Description of the proposed compensatory mitigation site (location and size, ownership status, existing functions and values).
- Implementation plan for the compensatory mitigation site (rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan).
- Maintenance activities during the monitoring period, including weed removal as appropriate (activities, responsible parties, schedule).
- Monitoring plan for the compensatory mitigation site, including no less than quarterly monitoring for the first year (performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports).
- Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, at least 80 percent survival of container plants and 30 percent relative cover by vegetation type.
- An adaptive management program and remedial measures to address any shortcomings in meeting success criteria.

- Notification of completion of compensatory mitigation and agency confirmation.
- Contingency measures (initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism).

B-1(e) Endangered/Threatened Species Habitat Assessment and Protocol Surveys.

Specific habitat assessment and survey protocol surveys are established for several federally and state endangered or threatened species. If the results of the BRA determine that suitable habitat may be present any such species, protocol habitat assessments/surveys shall be completed in accordance with CDFW and/or USFWS protocols prior to issuance of any construction permits. If through consultation with the CDFW and/or USFWS it is determined that protocol habitat assessments/surveys are not required, said consultation shall be documented prior to issuance of any construction permits. Each protocol has different survey and timing requirements. The applicants for each project shall be responsible for ensuring they understand the protocol requirements.

B-1(f) Endangered/Threatened Species Avoidance and Minimization. The habitat requirements of endangered and threatened species throughout Shasta County are highly variable. The potential impacts from any given project implemented under the 2018 RTP are likewise highly variable. However, there are several avoidance and minimization measures that can be applied for a variety of species to reduce the potential for impact, with the final goal of no net loss of the species. The following measures may be applied to aquatic and/or terrestrial species. Project lead agencies shall select from these measures as appropriate. Additionally, projects with the potential to affect endangered or threatened state and federal species may require take authorization from CDFW and/or USFWS.

- Ground disturbance shall be limited to the minimum necessary to complete the project. The project limits of disturbance shall be flagged. Areas of special biological concern within or adjacent to the limits of disturbance shall have highly visible orange construction fencing installed between said area and the limits of disturbance.
- All projects occurring within/adjacent to aquatic habitats (including riparian habitats and wetlands) shall be completed during the typical low flow period or when water is unlikely to be present (generally between April 1 and October 31), if feasible, to avoid impacts to sensitive aquatic species. Additional timing restrictions shall be incorporated into the project schedule on a species by species basis in coordination with the resource agencies (e.g. NMFS, CDFW, USFWS).
- All projects occurring within or adjacent to sensitive habitats that may support federally and/or state endangered/threatened species shall have a CDFW and/or USFWS-approved biologist present during all initial ground disturbing/vegetation-clearing activities. Once initial ground disturbing/vegetation clearing activities have been completed, said biologist shall conduct daily pre-activity clearance surveys for endangered/threatened species. Alternatively, and upon approval of the CDFW and/or USFWS, said biologist may conduct site inspections at a minimum of once per week to ensure

all prescribed avoidance and minimization measures are begin fully implemented.

- No endangered/threatened species shall be captured and relocated without expressed permission from the CDFW and/or USFWS.
- If at any time during construction of the project an endangered/threatened species enters the construction site or otherwise may be impacted by the project, all project activities shall cease. A CDFW/USFWS-approved biologist shall document the occurrence and consult with the CDFW and/or USFWS as appropriate.
- For all projects occurring in areas where endangered/ threatened species may be present and are at risk of entering the project site during construction, exclusion fencing shall be placed along the project boundaries prior to start of construction (including staging and mobilization). The placement of the fence shall be at the discretion of the CDFW/USFWS-approved biologist. This fence shall consist of solid silt fencing placed at a minimum of 3 feet above grade and 2 feet below grade and shall be attached to wooden stakes placed at intervals of not more than 5 feet. The fence shall be inspected daily and following rain events and high wind events and shall be maintained in good working condition until all construction activities are complete.
- All vehicle maintenance/fueling/staging shall occur not less than 100 feet from any riparian habitat or water body. Suitable containment procedures shall be implemented to prevent spills. A minimum of one spill kit shall be available at each work location near riparian habitat or water bodies.
- No equipment shall be permitted to enter wetted portions of any affected drainage channel.
- All equipment operating within streams shall be in good conditions and free of leaks. Spill containment shall be installed under all equipment staged within stream areas and extra spill containment and clean up materials shall be located in close proximity for easy access.
- If project activities could degrade water quality, water quality sampling shall be implemented to identify the pre-project baseline, and to monitor during construction for comparison to the baseline.
- If water is to be diverted around work sites, a diversion plan shall be submitted (depending upon the species that may be present) to the CDFW, Regional Water Quality Control Board (RWQCB), USFWS, and/or NMFS for their review and approval prior to the start of any construction activities (including staging and mobilization). If pumps are used, all intakes shall be completely screened with wire mesh not larger than five millimeters to prevent animals from entering the pump system.
- At the end of each workday, excavations shall be secured with cover or a ramp provided to prevent wildlife entrapment.
- All trenches, pipes, culverts or similar structures shall be inspected for animals prior to burying, capping, moving, or filling.
- The CDFW/USFWS-approved biologist shall remove invasive aquatic species such as bullfrogs and crayfish from suitable aquatic habitat whenever observed and shall dispatch them in a humane manner and dispose of properly.
- If any federally and/or state protected species are harmed, the CDFW/USFWS-approved biologist shall document the circumstances that led to harm and shall

determine if project activities should cease or be altered in an effort to avoid additional harm to these species. Dead or injured special status species shall be disposed of at the discretion of the CDFW and USFWS. All incidences of harm shall be reported to the CDFW and USFWS within 48 hours.

- Considering the potential for projects to impact federal and state listed species and their habitat, SRTA and lead agencies shall contact the CDFW and USFWS to identify mitigation banks within Shasta County during development of the RTP. Upon implementation of projects included in the RTP, but on a project-by-project basis, if the results of the BRA determines that impacts to federal and state threatened or endangered species habitat are expected, lead agencies shall explore species-appropriate mitigation bank(s) servicing the county for purchase of mitigation credits. If mitigation banks or credits are not available, mitigation options may include, but are not limited to, onsite or offsite habitat creation and restoration, land acquisitions, or conservation easements.

B-1(g)

Non-Listed Special Status Animal Species Avoidance and Minimization. Several State Species of Special Concern may be impacted by projects implemented under the 2018 RTP. The ecological requirements and potential for impacts is highly variable among these species. Depending on the species identified in the BRA, several of the measures identified under BIO-6 shall be applicable to the project. In addition, measures shall be selected from among the following to reduce the potential for impacts to non-listed special status animal species:

- For non-listed special-status terrestrial amphibians and reptiles, coverboard surveys shall be completed within three months of the start of construction. The coverboards shall be at least four feet by four feet and constructed of untreated plywood placed flat on the ground. The coverboards shall be checked by a qualified biologist once per week for each week after placement up until the start of vegetation removal. All non-listed special status and common animals found under the coverboards shall be captured and placed in five-gallon buckets for transportation to relocation sites. All relocation sites shall be reviewed by the project lead agency and shall consist of suitable habitat. Relocation sites shall be as close to the capture site as possible but far enough away to ensure the animal(s) is not harmed by construction of the project. Relocation shall occur on the same day as capture. If a relocation site immediately adjacent to the project site is unavailable, the CDFW shall be consulted to determine an appropriate relocation site. CNDDDB Field Survey Forms shall be submitted to the CDFW for all special-status animal species observed.
- Pre-construction clearance surveys shall be conducted within 14 days of the start of construction (including staging and mobilization). The surveys shall cover the entire disturbance footprint plus a minimum 200-foot buffer, if feasible, and shall identify all special status animal species that may occur on-site. All non-listed special-status species shall be relocated from the site either through direct capture or through passive exclusion (e.g., American badger). A report of the pre-construction survey shall be submitted to the lead agency for their review and approval prior to the start of construction.

- A qualified biologist shall be present during all initial ground disturbing activities, including vegetation removal to recover special status animal species unearthed by construction activities.
- Upon completion of the project, a qualified biologist shall prepare a Final Compliance report documenting all compliance activities implemented for the project, including the pre-construction survey results. The report shall be submitted within 30 days of completion of the project to the project lead agency and CDFW.
- If special-status bat species may be present and impacted by the project, a qualified bat biologist shall conduct within 30 days of the start of construction presence/absence surveys for special-status bats in consultation with the CDFW where suitable roosting habitat is present. Surveys shall be conducted using acoustic detectors and by searching tree cavities, crevices, and other areas where bats may roost. If active roosts are located, exclusion devices such as netting shall be installed to discourage bats from occupying the site. If a roost is determined by a qualified bat biologist to be used by a large number of bats (large hibernaculum), bat boxes shall be installed near the project site. The number of bat boxes installed will depend on the size of the hibernaculum and shall be determined through consultations with the CDFW. If a maternity colony has become established, all construction activities shall be postponed within a 500-foot buffer around the maternity colony until it is determined by a qualified bat biologist that the young have dispersed. If it is determined that a maternity colony would be removed, it would be done only if the roost is clear of bats. The decisions on whether or not the maternity roost would be removal shall be made in consultation with CDFW.

B-1(h)

Preconstruction Surveys for Nesting Birds for Construction Occurring within Nesting Season. For projects that may result in tree felling or removal of trees or vegetation that may contain a nesting bird, if feasible, construction activities should occur generally between September 16 to January 31 (thus outside of the nesting season). However, if construction activities must happen during the nesting season (generally February 1 to September 15), surveys for nesting birds covered by the California Fish and Game Code and the Migratory Bird Treaty Act shall be conducted by a qualified biologist no more than 7 days prior to vegetation removal. The surveys shall include the entire segment disturbance area plus a 200-foot buffer around the site. If active nests are located, all construction work shall be conducted outside a buffer zone from the nest to be determined by the qualified biologist. The buffer shall be a minimum of 50 feet for non-raptor bird species and at least 150 feet for raptor species or as determined in consultation with CDFW and/or USFWS. Larger buffers may be required depending upon the status of the nest and the construction activities occurring in the vicinity of the nest. The buffer area(s) shall be closed to all construction personnel and equipment until the adults and young are no longer reliant on the nest site. A qualified biologist shall confirm that breeding/nesting is completed and young have fledged the nest prior to removal of the buffer. A report of these preconstruction nesting bird surveys shall be submitted to the lead agency to document compliance and to the CDFW.

B-1(i) Worker Environmental Awareness Program (WEAP). Prior to initiation of construction activities for applicable projects (including staging and mobilization), all personnel associated with project construction shall attend WEAP training, conducted by a qualified biologist, to aid workers in recognizing special status resources that may occur in the project area. The specifics of this program shall include identification of the sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employers, and other personnel involved with construction of the project. An acknowledgement form shall be signed by each employee indicating that they have attended the WEAP and understand the information presented to them. The form shall be submitted to the lead agency to document compliance.

B-1(j) Tree Protection. If it is determined that construction may impact trees protected by local agencies, the project lead agency shall procure all necessary tree removal permits. A certified arborist shall develop a tree protection and replacement plan as appropriate. The plan shall include, but would not be limited to, an inventory of trees to within the construction site, setbacks from trees and protective fencing, restrictions regarding grading and paving near trees, direction regarding pruning and digging within root zone of trees, and requirements for replacement and maintenance of trees. If protected trees will be removed, replacement tree plantings of like species in accordance with local agency standards, but at a minimum ratio of 2:1 (trees planted to trees impacted), shall be installed on-site or at an approved off-site location and a restoration and monitoring program shall be developed in accordance with BIO-4 and shall be implemented for a minimum of seven years or until stasis has been determined by certified arborist. If a protected tree shall be encroached upon but not removed, a certified arborist shall be present to oversee all trimming of roots and branches.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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

Transportation improvement projects contained in the 2018 RTP consist of projects included in the 2015 RTP, which were analyzed in the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions, which encourages infill development within existing urbanized areas. As a result, no new or substantially more severe effects would occur related to impacts to sensitive habitats including wetlands, compared to the 2015 RTP, and no new mitigation measures are necessary. However, these transportation improvement projects could have both direct impacts associated with the disturbance of riparian flora and fauna and indirect impacts caused by increased erosion and sedimentation. Mitigation measures from the 2015 RTP EIR, as shown below, would apply to the applicable transportation projects to reduce associated impacts to

wetlands and would sufficiently address potential impacts associated with new projects included in the 2018 RTP/SCS. Impacts would be less than significant with mitigation and further analysis in an EIR is not warranted.

- B-2(a) Jurisdictional Delineation.** If projects implemented under the 2018 RTP/SCS occur within or adjacent to wetland, drainages, riparian habitats, or other areas that may fall under the jurisdiction of the CDFW, U.S. Army Corps of Engineers (USACE), and/or RWQCB, a qualified biologist shall complete a jurisdictional delineation. The jurisdictional delineation shall determine the extent of the jurisdiction for each of these agencies and shall be conducted in accordance with the requirement set forth by each agency. The result shall be a preliminary jurisdictional delineation report that shall be submitted to the implementing agency, USACE, RWQCB, and CDFW, as appropriate, for review and approval. If jurisdictional areas are expected to be impacted, then the RWQCB would require a Waste Discharge Requirements (WDR) permit and/or Section 401 Water Quality Certification (depending upon whether or not the feature falls under federal jurisdiction). If CDFW asserts its jurisdictional authority, then a Streambed Alteration Agreement pursuant to Section 1600 *et seq.* of the California Fish and Game Code would also be required prior to construction within the areas of CDFW jurisdiction. If the USACE asserts its authority, then a permit pursuant to Section 404 of the Clean Water Act would likely be required.
- B-2(b) Wetland and Riparian Habitat Restored.** Impacts to jurisdictional wetland and riparian habitat shall be mitigated at a minimum ratio of 2:1 (acres of habitat restored to acres impacted), and shall occur on-site or as close to the impacted habitat as possible. A mitigation and monitoring plan shall be developed by a qualified biologist in accordance with mitigation measure BIO-4 above and shall be implemented for no less than five years after construction of the segment, or until the lead agency and/or the permitting authority (e.g., CDFW or USACE) has determined that restoration has been successful. Alternately, mitigation may occur through the purchase of credits at a USACE approved mitigation bank or contribution to the USACE in-lieu fee program within the USACE Sacramento District. If mitigation is required through a Lake or Streambed Alteration Agreement, the mitigation bank or purchase of credits in an in-lieu fee program shall be approved by CDFW.
- B-2(c) Landscaping Plan.** If landscaping is proposed for projects occurring within or adjacent to sensitive habitats, a qualified biologist/landscape architect shall prepare a landscape plan for that project. This plan shall indicate the locations and species of plants to be installed. Drought tolerant, locally native plant species shall be used. Noxious, invasive, and/or non-native plant species that are recognized on the Federal Noxious Weed List, California Noxious Weeds List, and/or California Invasive Plant Council Lists 1, 2, and 4 shall not be permitted. Species selected for planting shall be similar to those species found in adjacent native habitats and if feasible, locally collected seeds and plants shall be used.
- B-2(d) Invasive Weed Prevention and Management Program.** Prior to start of construction for projects occurring within or adjacent to sensitive habitats, an Invasive Weed Prevention and Management Program shall be developed by a qualified biologist to prevent invasion of native habitat by non-native plant species. A list of target species shall be included, along with measures for early detection

and eradication. All disturbed areas shall be hydroseeded with a mix of locally native species upon completion of work in those areas. In areas where construction is ongoing, hydroseeding shall occur where no construction activities have occurred within six (6) weeks since ground disturbing activities ceased. If exotic species invade these areas prior to hydroseeding, weed removal shall occur in consultation with a qualified biologist and in accordance with the restoration plan.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- d. *Would the project 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?*

Similar to the 2015 RTP, the 2018 RTP/SCS would increase human activity in areas where sensitive biological resources could occur. In particular, new road construction projects not included on the 2015 RTP list could increase human activity in the vicinity of riparian areas, wildlife nurseries or corridors, and potentially sensitive habitats, if present. In addition, while the future land use scenario envisioned by the 2018 RTP/SCS would encourage infill development, the creation of new roadways could further isolate areas of native habitat occupied by both sensitive and common native wildlife species. Mitigation measures from the 2015 EIR, as shown below, would apply to the applicable transportation projects to reduce impacts to wildlife movement corridors. However, similar to the 2015 RTP, impacts would be potentially significant because disruption to wildlife movement is still anticipated. Additional specific analyses, as described in measure BIO-1: Resources Screening and Assessment will need to be conducted as the individual projects are implemented and final designs completed in order to determine the actual magnitude of impact, if any. However, because of the programmatic nature of the 2018 RTP/SCS, specific impacts to wildlife movement are not known at this time and impacts resulting from individual 2018 RTP/SCS transportation projects would remain potentially significant. Impacts from the 2018 RTP/SCS would be similar to the 2015 RTP and would not involve new or substantially more severe impacts. Thus, further analysis in an EIR is not warranted.

B-3(a) Fence and Lighting Design. All projects including long segments of fencing and lighting shall be designed to minimize impacts to wildlife. Fencing shall not block wildlife movement through riparian or other natural habitat. Where fencing is required for public safety concerns, the fence shall be designed in consultation with CDFW and to permit wildlife movement by incorporating design features such as:

- A minimum 16 inches between the ground and the bottom of the fence to provide clearance for small animals;
- A minimum 12 inches between the top two wires, or top the fence with a wooden rail, mesh, or chain link instead of wire to prevent animals from becoming entangled; and
- If privacy fencing is required near open space areas, openings at the bottom of the fence measure at least 16 inches in diameter shall be installed at reasonable intervals to allow wildlife movement

If fencing must be designed in such a manner that wildlife passage would not be permitted, wildlife crossing structures shall be incorporated into the project design as appropriate and in consultation with CDFW.

Similarly, lighting installed as part of any project shall be designed to be minimally disruptive to wildlife. This may be accomplished through the use of hoods to direct light away from natural habitat, using low intensity lighting, and using as few lights as necessary to achieve the goals of the project. Lighting for trails and bridges that would overspill onto rivers and/or streams that are known to support anadromous fish shall be approved by CDFW.

B-3(b)

Construction Best Management Practices. The following construction Best Management Practices (BMPs) shall be incorporated into all grading and construction plans:

- Designation of a 20 mile-per-hour speed limit in all construction areas.
- All vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas, and clearing of vegetation for vehicle access shall be avoided to the greatest extent feasible.
- The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the goal of the project.
- Designation of equipment washout and fueling areas to be located within the limits of grading at a minimum of 100 feet from waters, wetlands, or other sensitive resources as identified by a qualified biologist. Washout areas shall be designed to fully contain polluted water and materials for subsequent removal from the site.
- Daily construction work schedules should be limited to daylight hours only, to the extent feasible.
- Mufflers shall be used on all construction equipment and vehicles shall be in good operating condition.
- Drip pans shall be placed under all stationary vehicles and mechanical equipment.
- All trash shall be placed in sealed containers and shall be removed from the project site a minimum of once per week.
- No pets are permitted on project site during construction.

POTENTIALLY SIGNIFICANT IMPACT

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

Similar to the 2015 RTP, the 2018 RTP/SCS would not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan (HCP/NCCP), or other approved local, regional, or state habitat conservation plan, as there are no adopted habitat or natural community conservation plans in the region that cover activities proposed by the 2018 RTP/SCS. There would be no impact and further analysis in an EIR is not warranted.

NO IMPACT

5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	■	☐	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	■	☐	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	■	☐	☐	☐
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	■	☐

- a. *Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?*
- b. *Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?*
- c. *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?*
- d. *Disturb any human remains, including those interred outside of formal cemeteries?*

No new federal, state, or county designated historical resources have been identified in Shasta County since the adoption of the 2015 RTP EIR (National Park Service 2017; California Office of Historic Preservation 2017; and Shasta County 2004). No bridges currently in service have been added to the Caltrans Bridge Inventory since adoption of the 2015 RTP that may have historical significance (Caltrans 2017a and 2017b). However, as discussed in the 2015 RTP EIR, future transportation improvements could directly or indirectly impact historic structures and impacts would be potentially significant.

Similar to the 2015 RTP, depending on the location and extent of the proposed improvement and ground disturbance of individual projects listed in the 2018 RTP/SCS, known and/or unknown cultural resources could be impacted. Transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned

by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. As a result, impacts to archaeological and paleontological resources would be similar to those discussed in the 2015 EIR and no new or substantially more severe impacts to archaeological and paleontological resources would occur.

In order to provide protection of historical and unique archeological resources, mitigation measures from the 2015 EIR, as shown below, would apply to any projects requiring ground disturbance or the alternation or demolition of any building or structure older than 50 years old. Implementation of the measures from the 2015 EIR would reduce potential impacts to archaeological and paleontological resources to a less than significant level. Impacts related to historic structures would remain significant and unavoidable because redevelopment or demolition that may be required to implement transportation improvements may result in the permanent loss of historic structures. However, impacts would be similar to the 2015 EIR and further analysis in an EIR is not warranted.

CR-1(a) The project lead agency of a 2018 RTP/SCS project involving earth disturbance, the installation of pole signage or lighting, or construction of permanent above ground structures or roadways shall ensure that the following elements are included in the project's individual environmental review:

- Prior to construction, a map defining the Area of Potential Effects (APE) shall be prepared on a project by project basis for 2018 RTP/SCS improvements which involve earth disturbance, the installation of pole signage or lighting, or construction of permanent above ground structures. This map will indicate the areas of primary and secondary disturbance associated with construction and operation of the facility and will help in determining whether known archaeological, paleontological or historical resources are located within the impact zone.
- A preliminary study of each project area, as defined in the APE, shall be completed to determine whether or not the project area has been studied under an earlier investigation, and to determine the impacts of the previous project.
- If the results of the preliminary studies indicate additional studies are necessary; development of field studies and/or other documentary research shall be developed and completed (Phase I studies). Negative results would result in no additional studies for the project area.
- Based on positive results of the Phase I studies, an evaluation of identified resources shall be completed to determine the potential eligibility/ significance of the resources (Phase II studies).
- Based on the evaluations of the Phase II studies, if necessary Phase II mitigation studies shall be coordinated with the Office of Historic Preservation, as the research design will require review and approval from the OHP. In the case of prehistoric or Native American related resources, the Native American Heritage Commission and/or local representatives of the Native American population shall be contacted and permitted to respond to the testing/mitigation programs.

CR-1(b) If development of the proposed improvement requires the presence of an archaeological, Native American, or paleontological monitor, the project lead agency shall ensure that a Native American monitor, certified archaeologist, and/or certified paleontologist, as applicable, monitors the grading and/or other initial ground altering activities. The schedule and extent of the monitoring will depend on the grading schedule and/or extent of the ground alterations. This requirement can be accomplished through placement of conditions on the project by the local jurisdiction during individual environmental review.

CR-1(c) The project lead agency shall ensure that materials recovered over the course of any given improvement are adequately cleaned, labeled, and curated at a recognized repository. This requirement can be accomplished through placement of conditions on the project by the local jurisdiction during individual environmental review.

CR-1(d) The project lead agency shall ensure that mitigation for potential impacts to significant cultural resources includes one or more of the following:

- Realign the project right-of-way (avoidance; the most preferable method).
- Cap the site and leave it undisturbed.
- Address structural remains with respect to NRHP guidelines (Phase III studies).
- Relocate structures per NRHP guidelines.
- Create interpretative facilities at the site.
- Develop measures to prevent vandalism.

These measures can be accomplished through placement of conditions on the project by the local jurisdiction during individual environmental review.

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d. Disturb any human remains, including those interred outside of formal cemeteries?

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. In addition, transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use provided by local jurisdictions. As a result, the 2018 RTP/SCS would not introduce any new or substantially more severe impacts related to the discovery of human remains. With

adherence to existing regulations, this impact would be less than significant, similar to the determination in the 2015 RTP EIR.

LESS THAN SIGNIFICANT IMPACT

6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project involve the inefficient, wasteful or unnecessary consumption of energy?	☐	☒	☐	☐

a. Would the project involve the inefficient, wasteful or unnecessary consumption of energy?

Transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP that are not yet constructed, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. However, some transportation improvement projects contained in the 2018 RTP/SCS would increase capacity, allowing a greater number of vehicles to use regional facilities. Increasing capacity and improving roadways and intersections does not necessarily result in an increase in motor vehicle trips. Increases in motor vehicle trips are primarily a combined function of population and employment growth. Population growth and VMT growth would occur in the region regardless of whether the 2018 RTP/SCS is implemented. However, the 2018 RTP/SCS would help to minimize energy consumption by improving the overall efficiency of the transportation system. Moreover, many 2018 RTP/SCS projects (e.g., transit projects and bikeway and pedestrian projects) would improve the availability of alternative transportation modes and help reduce congestion, along with the resultant harmful air quality emissions in the region.

The land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that of the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions, which promotes infill development in existing commercial corridors in combination with high-quality transit service in later years (e.g., Redding Area Bus Authority) and improved bicycle and pedestrian infrastructure. Infill projects would reduce VMT and energy use because they would locate people closer to existing goods, services, and transportation hubs, thereby resulting in fewer and shorter vehicle trips, promoting active transportation (walking or biking), and encouraging the use of alternative modes of transit (e.g., buses). Implementation of the land use scenario contained in the 2018 RTP/SCS would increase overall demand for energy beyond existing conditions. However, such development would not require unusual, unnecessary, or wasteful amounts of energy as future infill development projects would be subject to the California Green Building Standards Code and Title 24 of the California Energy Code, which set forth specific energy efficiency requirements related to design, construction methods and materials. This impact would be less than significant, similar to the finding in the 2015 RTP EIR, and further analysis in an EIR is not warranted.

Project lead agencies can and should implement the following mitigation measures for applicable 2018 RTP/SCS transportation projects. Shasta County and the cities of Anderson, Redding, and Shasta Lake should implement these measures, where applicable, to land use projects resulting from implementation of the 2018 RTP/SCS. The following mitigation measures recommended by the SRTA are not required to reduce energy impacts to less than significant. They are provided as

measures that could be implemented to reduce energy consumption. Project-specific environmental impacts may require these measures be revised or expanded in response to site-specific conditions.

- E-1(a)** New facilities should be designed with energy-efficient equipment and passive solar design (e.g., orientation of building to maximize natural heating and cooling, solar water heating, use of daylighting, and placement of trees to aid passive cooling, protection from prevailing winds, and maximum year-round solar access), provided that additional capital costs are offset by estimated energy savings during the first five years of operation. Additional improvements with longer payback periods, such as photovoltaic solar electric systems, should be considered where applicable.
- E-1(b)** All lighting should be energy efficient and designed to use the least amount of energy to serve the purpose of the lighting. Lighting should utilize solar energy wherever feasible.
- E-1(c)** New landscaping design and irrigation systems should be water efficient. To the extent possible, reclaimed water should be used for roadside landscape irrigation.

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7 Environmental Justice

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project lead to disproportionately high and adverse human health or environmental impacts to the minority populations, low-income populations, and/or populations with low mobility in the region?	☐	☐	☒	☐
b. Would the project cause the mobility benefits derived from the 2018 RTP/SCS in terms of travel times and accessibility by transit and/or single occupancy vehicle to be substantially less for minority populations, low-income populations, and/or populations with low mobility in the region?	☐	☐	☒	☐

- a. *Would the project lead to disproportionately high and adverse human health or environmental impacts to the minority populations, low-income populations, and/or populations with low mobility in the region?*
- b. *Would the project cause the mobility benefits derived from the 2018 RTP/SCS in terms of travel times and accessibility by transit and/or single occupancy vehicle to be substantially less for minority populations, low-income populations, and/or populations with low mobility in the region?*

Some minority and/or low-income populations may be affected during construction of some transportation improvement projects and future infill development under the 2018 RTP/SCS. As discussed throughout this Initial Study and the 2015 RTP EIR, transportation improvement projects contained in the RTP may have temporary air quality, noise, and traffic impacts on surrounding communities. Specific air quality impacts could include exposure to dust resulting from operation of construction vehicles and equipment. Other air quality impacts could include temporary exposure to hazardous air emissions, including diesel emissions from construction vehicles and equipment. Construction noise impacts from clearing, grading, and laying asphalt could expose nearby receptors to high levels of noise depending on the type of equipment used. Temporary traffic impacts would include delays during road closures or other disturbances caused by construction activities. Although minority populations have the potential to be exposed to these impacts, the 2018 RTP/SCS transportation projects are located throughout the populated areas of the SRTA region and minority, low-income, and/or low-mobility populations are also spread throughout the SRTA region. As a result, minority, low-income, and/or low-mobility communities would not be disproportionately exposed to these potential impacts, and such impacts would be reduced to less

than significant levels through implementation of the mitigation measures contained in the applicable sections of this Initial Study and the 2018 RTP/SCS SEIR.

In addition, transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP that are not yet constructed, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP, with the exception of minor updates to land use information provided by local jurisdictions, and would not disproportionately affect minority, low-income, and/or low-mobility populations. As a result, transportation improvement projects included in and the land use scenario envisioned by the 2018 RTP/SCS would not introduce any new or substantially more severe impacts regarding environmental justice. This impact would be less than significant and impacts would be similar to those discussed in the 2015 EIR.

LESS THAN SIGNIFICANT IMPACT

8 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☒	☐	☐
2. Strong seismic ground shaking?	☐	☒	☐	☐
3. Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
4. Landslides?	☐	☒	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c. Be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☒	☐	☐
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐

a.1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most

recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

- a.2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*
- a.3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?*

Implementation of transportation improvements and future projects under the land use scenario envisioned by the 2018 RTP/SCS could be exposed to fault rupture and groundshaking. However, as discussed throughout this Initial Study, transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP that are not yet constructed, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. As a result, no new or substantially more severe effects would occur related to seismic activity compared to the 2015 RTP as evaluated in the 2015 RTP EIR. Mitigation measures from the 2015 EIR, listed below, as well as adherence to existing regulations such as the California Building Code, should reduce impacts to a less than significant level. Impacts would be less than significant with mitigation and further analysis in an EIR is not warranted.

G-1 The lead agency in which a particular 2018 RTP/SCS project is located shall ensure that the structure is designed and constructed to the latest geotechnical standards. In most cases, this will necessitate site-specific geologic and soils engineering investigations to exceed the code for high groundshaking zones. This can be accomplished through the placement of conditions on the project by the lead agency during individual environmental review.

G-2 If a 2018 RTP/SCS project involves cut slopes over 15 feet in height, the lead agency in which the project is located shall ensure that specific slope stabilization studies are conducted. Possible stabilization methods include buttresses, retaining walls, and soldier piles.

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- b. Would the project result in substantial soil erosion or the loss of topsoil?*
- d. Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*
- a.4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?*
- c. Would the project be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?*

It is not expected that the transportation improvement projects included in the 2018 RTP/SCS would be susceptible to liquefaction because groundshaking is usually low to moderate in intensity in

Shasta County (Shasta County 2015). Expansive soils are considered a low or minor threat in Shasta County, according to the 2011 Shasta County Hazard Mitigation Plan (Shasta County 2011). In addition, transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP that are not yet constructed, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. As a result, no new or substantially more severe effects would occur related to projects located on potentially unstable soils, or in areas with high potential for impacts from landslides compared to the 2015 RTP as evaluated in the 2015 RTP EIR. Moreover, similar to the 2015 RTP, the 2018 RTP/SCS would not directly increase the potential for people to be subject to volcanic hazards as the proposed RTP projects are intended to enhance existing transportation facilities rather than increasing development potential in remote areas that are located in close proximity to the region's three volcanoes. Therefore, impacts related to volcano hazards would remain less than significant. Mitigation measures from the 2015 EIR, listed below, and compliance with existing California Building Code regulations would reduce impacts for the applicable transportation projects to the extent feasible. Impacts would be less than significant with mitigation and further analysis in an EIR is not warranted.

- G-2** If an RTP project involves cut slopes over 15 feet in height, the lead agency in which the project is located shall ensure that specific slope stabilization studies are conducted. Possible stabilization methods include buttresses, retaining walls and soldier piles.

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- e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

No new projects included in the 2018 RTP would require the use of septic tanks or alternative waste water disposal systems. Future infill development is anticipated to connect to existing wastewater infrastructure. Therefore, impacts related to soils incapable of adequately supporting the use of septic tanks would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

9 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b. Conflict with any applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

- a. *Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?*
- b. *Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Similar to the preliminary determination under Air Quality, greenhouse gas (GHG) modeling would be required in order to determine the magnitude of individual and cumulative emissions resulting from transportation improvement projects and the land use scenario envisioned by the 2018 RTP/SCS. Based on the changes within the 2018 RTP/SCS relative to the 2015 RTP, potential impacts from GHG emissions facilitated by the 2018 RTP/SCS will require a detailed analysis in a supplemental EIR. As such, SRTA will examine both of the checklist questions above in the Supplemental EIR and will decide whether the 2018 RTP/SCS would have a significant impact related to GHG emissions. At this point a definitive impact conclusion for each of these environmental topics will not be made, rather both are considered potentially significant until a detailed analysis is prepared in the Supplemental EIR.

POTENTIALLY SIGNIFICANT IMPACT

10 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☒	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☒	☐	☐	☐

- a. *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*
- b. *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*
- c. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*

Transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP that are not yet constructed, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. However, similar to the 2015 RTP, transportation improvement projects under the 2018 RTP/SCS could facilitate the transport of hazardous materials on roadways or railways in Shasta County, but would not directly result in a transport-related hazard. Compliance with existing laws and regulations, such as the federal Resource Conservation and Recovery Act (RCRA) and the state Hazardous Waste Control Act and California Vehicle Code, would ensure that the transport of hazardous materials, the handling of acute hazardous substances within proximity to schools, and the release of hazardous materials would be adequately controlled. As a result, no new or substantially more severe impacts from transportation or release of hazardous materials would occur compared to the 2015 RTP as evaluated in the 2015 RTP EIR. Impacts would be less than significant and further analysis in a supplemental EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project be located on a site included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

Similar to the 2015 RTP, the majority of transportation improvements contained in the 2018 RTP/SCS involve modification of existing facilities, rather than construction of new facilities, and would not occur on known hazardous sites. With regard to future projects that would develop new facilities, because of the programmatic nature of the RTP, it is not possible to determine with accuracy whether future projects located on previously undisturbed land would contain hazardous materials. However, the applicant(s) and/or lead agency for such projects would be required to address any on-site environmental issues, including any potential hazardous materials and mitigate such impacts accordingly. Because the transportation improvement projects included in the 2018 RTP/SCS are not substantially different from those included in the 2015 RTP, as discussed above, and the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that of the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions, no new or substantially more severe impacts would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*
- f. For a project near a private airstrip, would it result in a safety hazard for people residing or working in the project area?*
- g. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Some projects under the 2018 RTP/SCS may be located within an airport hazard zone; however, no new projects listed in the 2018 RTP/SCS compared to the 2015 RTP project list would directly expose people or create a new airport safety hazard. In addition, no new projects in the 2018 RTP/SCS would have adverse impacts on adopted emergency response plans or emergency evacuation plans; rather, by improving circulation in the County, the 2018 RTP/SCS could have beneficial impact on emergency response and evacuation. As described above, no new or substantially more severe impacts would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

- h. Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

In light of the recent wildfire events in California, an updated analysis would be required to determine the magnitude of wildland fire risk exposure resulting from transportation improvement projects and the land use scenario envisioned by the 2018 RTP/SCS, and to discern whether this risk exposure exceeds that identified in the previous RTP EIR. As such, SRTA will examine this hazard checklist question in the Supplemental EIR. At this point a definitive impact conclusion for this environmental topic will not be made, but rather is considered potentially significant until a detailed analysis is prepared in the Supplemental EIR.

POTENTIALLY SIGNIFICANT IMPACT

11 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☒	☐	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐
e. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f. Otherwise substantially degrade water quality?	☐	☒	☐	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g. Place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?	☐	☒	☐	☐
h. Place structures in a 100-year flood hazard area that would impede or redirect flood flows?	☐	☒	☐	☐
i. Expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam?	☐	☒	☐	☐
j. Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

a. *Would the project violate any water quality standards or waste discharge requirements?*

e. *Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

f. *Would the project otherwise substantially degrade water quality?*

Similar to the 2015 RTP, implementation of transportation improvements and future land use development projects envisioned in the 2018 RTP/SCS could result in soil erosion and contaminants in runoff, which could degrade surface water and ground water quality. However, transportation improvement projects contained in the 2018 RTP/SCS consist of projects included in the 2015 RTP that are not yet constructed, which were analyzed by the 2015 RTP EIR, with the addition of approximately 35 net new minor projects. These new projects included in the 2018 RTP/SCS would not be substantially different in terms of geographical location, type of project, or size of project to those on the 2015 RTP project list. As such, transportation improvement projects included in the 2018 RTP/SCS would not introduce new or substantially more severe effects related to water quality compared to the 2015 RTP as evaluated in the 2015 RTP EIR. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. However, the same mitigation measures from the 2015 EIR, shown below, would be required to address potential impacts to water quality. Impacts would be less than significant with mitigation and further analysis in an EIR is not warranted.

W-2(a) The lead agency of a 2018 RTP/SCS project shall ensure that fertilizer/pesticide application plans for any new right-of-way landscaping are prepared to minimize

deep percolation of contaminants. The plans shall specify the use of products that are safe for use in and around aquatic environments.

- W-2(b)** The lead agency of a 2018 RTP/SCS widening or roadway extension project shall ensure that the improvement directs runoff into subsurface percolation basins and traps which would allow for the removal of urban pollutants, fertilizers, pesticides, and other chemicals.
- W-2(c)** For a 2018 RTP/SCS project that would disturb at least one acre, a SWPPP shall be developed prior to the initiation of grading and implemented for all construction activity on the project site. The SWPPP shall include specific BMPs to control the discharge of material from the site and into the creeks and local storm drains. BMP methods may include, but would not be limited to, the use of temporary retention basins, straw bales, sand bagging, mulching, erosion control blankets and soil stabilizers.

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- b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?*

During grading and general construction activities for transportation projects contained in the 2018 RTP/SCS, water would be needed to suppress fugitive dust generated by construction equipment. Water used during construction could be drawn from the Redding or Fall River Valley Groundwater Basins, supplies of which would potentially be in deficit during drought years. Similar to the 2015 RTP, major projects in the 2018 RTP/SCS, such as road widenings and expansions, as well as new sidewalks, throughout the RTP plan area could also affect groundwater supplies by incrementally reducing groundwater recharge potential. No new or substantially more severe effects would occur related to impacts to water supplies and demand compared to the 2015 RTP as evaluated in the 2015 EIR. Mitigation measures, shown below, from the 2015 EIR address potential impacts to water supply. Impacts would be less than significant with mitigation and further analysis in an EIR is not warranted.

- W-1(a)** The individual lead agency of a 2018 RTP/SCS project shall ensure that, where economically feasible, reclaimed water is used for dust suppression during construction activities. This measure shall be noted on construction plans and shall be spot checked by the lead agency.
- W-1(b)** The individual lead agency of a 2018 RTP/SCS project shall ensure that low water use landscaping (i.e., drought tolerant plants and drip irrigation) is installed. When feasible, native plant species shall be used.
- W-1(c)** The individual lead agency of a 2018 RTP/SCS project shall ensure that, if feasible, landscaping associated with proposed improvements is maintained using reclaimed water.
- W-1(d)** The individual lead agency of a 2018 RTP/SCS project shall ensure that porous pavement materials are utilized, where feasible, to allow for groundwater percolation.

- W-1(e)** The individual lead agency of a 2018 RTP/SCS project that requires potable water service should coordinate with water supply system operators to ensure that the existing water supply systems have the capacity to handle the increase. If the current infrastructure servicing the project site is found to be inadequate, infrastructure improvements for the appropriate public service or utility should be provided by the project sponsor. In addition, wherever feasible, reclaimed water should be used for landscaping purposes instead of potable water.

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- c. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site??*
- d. *Would the project substantially alter the existing drainage pattern of the site or area, including the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?*

New projects added as part of the 2018 RTP/SCS could change the drainage pattern of an area or result in flooding due to the alteration of a stream or river. However, as the 2018 RTP/SCS consists mainly of transportation improvement projects analyzed in the 2015 RTP EIR with approximately 35 net new minor projects that would not substantially differ in geographical location, type of project, or size of the project, 2018 RTP/SCS transportation improvement projects would not result in new or substantially more severe impacts beyond those analyzed in the 2015 RTP EIR. Moreover, the majority of projects would occur within existing rights-of-way and would not generate significant new surface water runoff that could exceed the capacity of stormwater infrastructure. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

- g. *Would the project place housing in a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary, Flood Insurance Rate Map, or other flood hazard delineation map?*
- h. *Would the project place structures in a 100-year flood hazard area that would impede or redirect flood flows?*
- i. *Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including that occurring as a result of the failure of a levee or dam?*

The 2018 RTP/SCS consists of transportation improvement projects contained in the 2015 RTP that remain to be constructed with approximately 35 net new minor projects, which would not substantially differ in geographical location, type of project, or size of the project. Similar to the 2015 RTP, near- and long-term transportation improvements envisioned in the 2018 RTP/SCS may occur in low-lying areas and in proximity to waterways and/or dam inundation zones. As such, these projects may be subject to the hazard of flooding. Failures of Shasta Lake or Whiskeytown Reservoir Dams would subject the cities of Redding and Anderson to inundation, where many RTP projects occur. However, the transportation improvement projects contained in the 2018 RTP/SCS, including the additional transportation projects, are of similar geographic location, type, and size to those in the 2015 RTP. In addition, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that of the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. As a result, no new or substantially more severe impacts from flooding would

occur compared to the 2015 RTP as evaluated in the 2015 RTP EIR. Mitigation measures, shown below, from the 2015 RTP EIR would address potential impacts to flooding. Impacts would be less than significant with mitigation and further analysis in an EIR is not warranted.

W-3(a) If a 2018 RTP/SCS project is located in an area with high flooding potential due to a storm event or dam inundation, the project lead agency shall ensure that the structure is elevated at least one foot above the 100-year flood zone elevation and that bank stabilization and erosion control measures are implemented along creek crossings.

W-3(b) For 2018 RTP/SCS projects within a dam failure inundation hazard zone, the project's lead agency shall ensure that a comprehensive flood risk communication strategy is developed, which would include an evacuation plan and/or an Emergency Action Plan and promote dam failure risk awareness and safety.

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j. Would the project result in inundation by seiche, tsunami, or mudflow?

As an inland region separated from the Pacific Ocean by mountains, Shasta County is at no risk from tsunamis. Earthquake-induced seiches also do not pose a risk to Shasta County. No new or substantially more severe impacts related to seiche, tsunami, or mudflow would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

12 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☒	☐
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c. Conflict with an applicable habitat conservation plan or natural community conservation plan?	☐	☐	☒	☐

- a. *Would the project physically divide an established community?*
- b. *Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

State and federal policies applicable to the 2018 RTP/SCS include Moving Ahead for Progress in the 21st Century Act (MAP-21), Fixing America's Surface Transportation (FAST) Act, Caltrans Smart Mobility 2010, Senate Bill (SB) 375, SB 32, and Assembly Bill (AB) 32. The goals of the 2018 RTP/SCS are based on and consistent with the planning factors stated in MAP-21 and the Caltrans Smart Mobility 2010 framework. The approach embraces MAP-21's emphasis on performance measurement and continues the transition in emphasis from mode development, an expanded transportation system, and the health and safety of Shasta County residents and visitors.

Similar to that of the 2015 RTP, the land use scenario envisioned by the 2018 RTP/SCS encourages infill development to minimize interregional trips and long-distance commuting, which would locate people closer to existing urbanized areas and transportation hubs. Construction and implementation of new transportation facilities or expansion of existing facilities could divide established communities in the short-term and long-term. However, the transportation improvement projects contained in the 2018 RTP/SCS, including added projects since adoption of the 2015 RTP, would not substantially differ from those included in the 2015 RTP in regard to geographic location, type, or size. As such, implementation of the 2018 RTP/SCS would not result in new or substantially more severe impacts regarding the division of an established community when compared with the 2015 RTP.

Similar to the 2015 RTP, the transportation improvement projects included in the 2018 RTP/SCS are intended to improve the multimodal transportation system with increased investments in transit and complete streets projects as well as more maintenance, rehabilitation, and operational improvements. In addition, the land use scenario envisioned by the 2018 RTP/SCS, which is similar to the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions, encourages infill development that is intended to help the region improve energy efficiency and reduce GHG emissions, consistent with SB 375, SB 32, and AB 32.

As a result, no new or substantially more severe impacts under the 2018 RTP/SCS related to dividing an established community or conflicting with applicable land use policies would occur compared to the 2015 RTP as evaluated in the 2015 EIR. SRTA recommends that project lead agencies implement the following mitigation measures for applicable transportation projects that may result in potential impacts related to temporary disturbance to and/or permanent displacement of residences and businesses. Impacts would be less than significant with mitigation and further analysis in an EIR is not warranted.

- LU-2(a)** The project lead agency of RTP projects with the potential to displace residences or businesses should ensure that project-specific environmental reviews consider alternative alignments and developments that avoid or minimize impacts to nearby residences and businesses.
- LU-2(b)** Where project-specific reviews identify displacement or relocation impacts that are unavoidable, the project lead agency should ensure that all applicable local, State, and federal relocation programs are used to assist eligible persons to relocate. In addition, the lead agency shall review the proposed construction schedules to ensure that adequate time is provided to allow affected businesses to find and relocate to other sites.
- LU-2(c)** For all RTP projects that could result in temporary lane closures or access blockage during construction, a temporary access plan should be implemented by the lead agency to ensure continued access to affected cyclists, businesses, and homes. Appropriate signs and safe access shall be guaranteed during project construction to ensure that businesses remain open.

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- c. *Would the project conflict with an applicable habitat conservation plan or natural community conservation plan?*

The 2018 RTP/SCS would not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan as there are no adopted habitat or natural community conservation plans in Shasta County that cover activities proposed by the 2018 RTP/SCS. No new or substantially more severe impacts would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

13 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

- a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

☐ ☐ ☒ ☐

- b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

☐ ☐ ☒ ☐

- a. *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

- b. *Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

The 2018 RTP/SCS primarily involves modifications to existing roadways, including improvements related to intersections, safety, and widening, as well as alternative transportation projects. No new transportation projects that would affect mineral resources have been added to the 2018 RTP/SCS. In addition, the land use scenario envisioned by the 2018 RTP/SCS, which mostly the same as that of the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions, would encourage infill development located within existing urbanized areas. Although these projects may be located on a site with known mineral resources or locally important mineral resources, the 2018 RTP/SCS would not limit access to or availability of known or locally important mineral resources beyond levels identified in the 2015 RTP EIR. No new or substantially more severe impacts related to mineral resources would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

14 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c. A substantial permanent increase in ambient noise levels above those existing prior to implementation of the project?	☐	☒	☐	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f. For a project near a private airstrip, would it expose people residing or working in the project area to excessive noise?	☐	☐	☒	☐

- a. *Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*
- b. *Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*
- c. *Would the project result in a substantial permanent increase in ambient noise levels above levels existing without the project?*

- d. *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Similar to the 2015 RTP, construction activities associated with the various transportation improvement projects identified in the 2018 RTP/SCS would result in temporary noise impacts in the immediate vicinity. These noise increases would be short-term. Construction activities in the vicinity of residences and other sensitive noise receptors would usually be limited to daytime hours. The transportation improvement projects contained in the 2018 RTP/SCS, including added projects since adoption of the 2015 RTP, would not substantially differ from those included in the 2015 RTP regarding geographic location, type, or size. As such, implementation of the 2018 RTP/SCS would not result in new or substantially more severe effects regarding noise impacts compared with the 2015 RTP. In addition, land uses associated with sensitive receptors are primarily concentrated in the three incorporated cities of Redding, Shasta Lake, and Anderson, and the land use scenario envisioned by the 2018 RTP/SCS is similar to the 2015 RTP with the exception of minor updates to land use information provided by local jurisdictions. Subsequent environmental review of project-specific impacts would be required prior to approval and implementation to determine the appropriate application of the following mitigation measures. This impact would be less than significant with mitigation incorporated and does not warrant further investigation in an EIR.

The following 2015 RTP noise mitigation measures would continue to apply to applicable transportation improvement projects included in the 2018 RTP/SCS. SRTA recommends that project lead agencies implement the mitigation measures identified below for applicable transportation projects. These measures should be implemented for all projects developed pursuant to the 2018 RTP/SCS that would result in temporary construction noise and/or vibration impacts. Project-specific environmental impacts may require these mitigations be revised or expanded in response to site-specific conditions:

- N-1(a)** Lead agencies of 2018 RTP/SCS projects shall ensure that, where residences or other noise sensitive uses are located within 800 feet of construction sites, appropriate measures shall be implemented to ensure consistency with local noise ordinance requirements relating to construction. Specific techniques may include, but are not limited to, restrictions on construction timing, use of sound blankets on construction equipment, and the use of temporary walls and noise barriers to block and deflect noise.
- N-1(b)** For any project that requires pilings and is located within 800 feet of sensitive receptors, the lead agencies shall require caisson drilling or sonic pile driving as opposed to impact pile driving, where feasible. This shall be accomplished through the placement of conditions on the project during its individual environmental review.
- N-1(c)** Lead agencies shall ensure that equipment and trucks used for project construction utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds).
- N-1(d)** Lead agencies shall ensure that impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction be hydraulically or electrically powered, wherever feasible, to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where the use of pneumatically powered tools is unavoidable, use of an exhaust muffler (reduces noise by up to 10

dB(A) or external jackets (reduces noise by up to 5 dBA.) is encouraged. Whenever feasible, use of quieter procedures, such as drilling is encouraged.

- N-1(e)** Locate stationary noise sources as far from sensitive receptors as possible. Stationary noise sources that must be located near sensitive receptors will be adequately muffled.
- N-2(a)** Lead agencies of 2018 RTP/SCS projects that would result in noise exceeding normally acceptable levels shall complete detailed noise assessments using applicable guidelines (e.g., FTA Transit Noise and Vibration Impact Assessment for rail and bus projects and the Caltrans Traffic Noise Analysis Protocol for roadway projects). The project lead agency shall ensure that a noise survey is conducted to determine potential alternate alignments which allow greater distance from, or greater buffering of, noise-sensitive areas. The noise survey shall be sufficient to indicate existing and projected noise levels, to determine the amount of attenuation needed to reduce potential noise impacts to applicable state and local standards. This shall be accomplished during the project's individual environmental review as necessary.
- N-2(b)** Where new or expanded roadways or transit are found to expose receptors to noise exceeding normally acceptable levels, the project lead agency shall consider various sound attenuation techniques. The preferred methods for mitigating noise impacts will be the use of appropriate setbacks and sound attenuating building materials where feasible. In instances where use of these techniques is not feasible, the use of sound barriers (earthen berms, sound walls, or some combination of the two) will be considered. Long expanses of walls or fences should be interrupted with offsets and provided with accents to prevent monotony. Landscape pockets and pedestrian access through walls should be provided. Whenever possible, a combination of elements should be used, including open grade paving, solid fences, walls, and landscaped berms. Determination of appropriate noise attenuation measures will be assessed on a case-by-case basis during a project's environmental review pursuant to the regulations of the applicable lead agency.
- N-3** If a 2018 RTP/SCS project is located in an area with exterior ambient noise levels above local noise standards or in an area with potential cumulative noise levels above local noise standards (based on traffic volumes from regionally adopted travel demand model), the project lead agency shall ensure that a noise study is conducted to determine existing and projected noise levels and feasible attenuation measures needed to reduce potential noise impacts to such uses to an exterior and interior noise level below local standards. Such measures may include, but are not limited to: dual-paned windows, solid core exterior doors away from roads. This shall be accomplished during the project's individual environmental review.

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- e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

- f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise?*

Any future infill or transportation improvement project under the 2018 RTP/SCS located within an airport land use plan zone and/or applicable noise contour would be subject to the policies of the Airport Land Use Commission pertaining to noise exposure. This ensures that noise attenuation features are implemented into the project as necessary. This impact would be less than significant, similar to the finding in the 2015 RTP EIR.

LESS THAN SIGNIFICANT IMPACT

15 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Shasta County is a predominantly rural region. Approximately 38 percent of the County's estimated 2017 population of 178,605 people lives outside the County's three incorporated cities (California Department of Finance [DOF] 2017). Shasta County contains 25 unincorporated rural communities. Urban development primarily takes place in the area commonly called the South Central Urban Region (SCUR), which includes the three incorporated Cities of Redding, Anderson, and Shasta Lake and the unincorporated community of Cottonwood, and is generally concentrated in the Sacramento River Valley along the transportation corridor of I-5, State Route 273, and the Union Pacific Railroad. As shown in Figure 1, many of the County's unincorporated communities are located along this transportation corridor, as well as along the east/west corridors of Highway 299, Highway 44, and Highway 89.

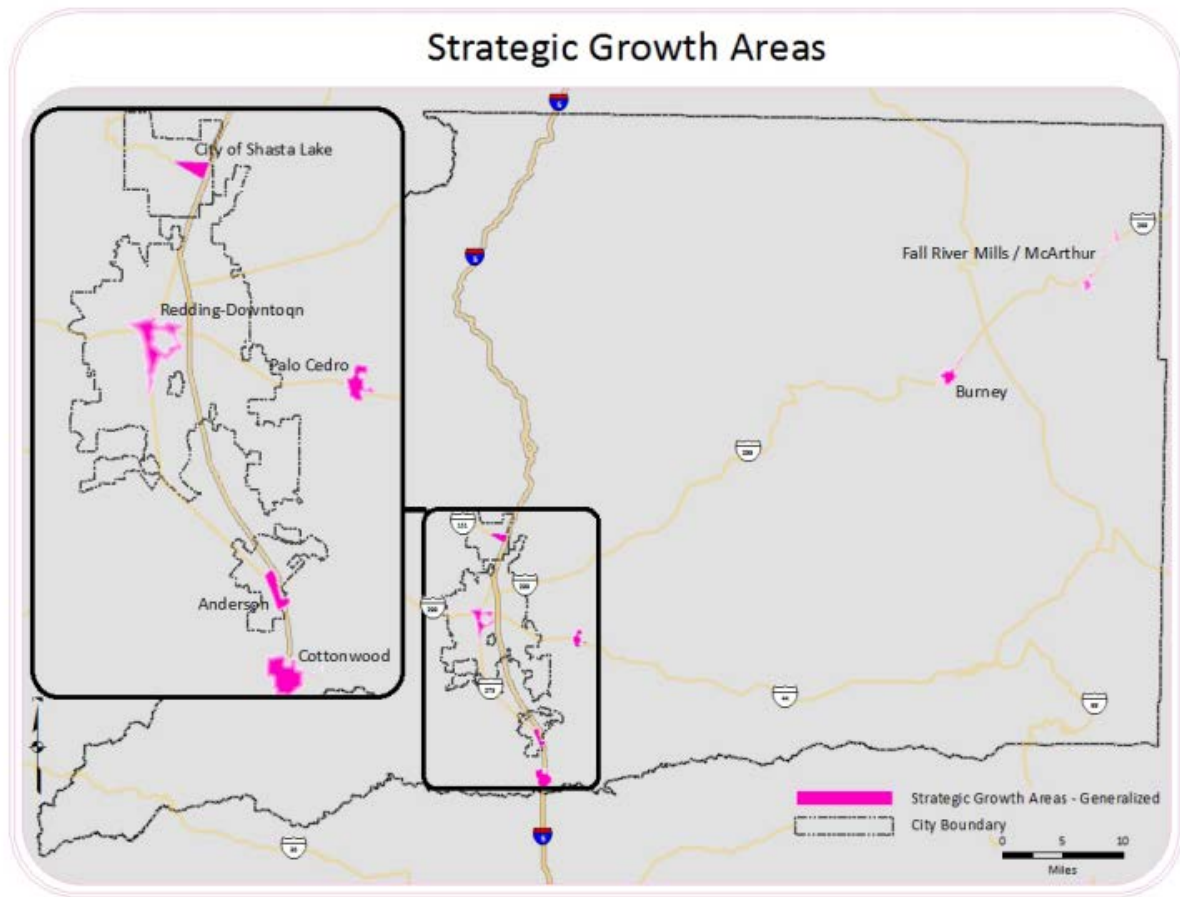
- Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*
- Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*
- Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

Transportation improvement projects included in the 2018 RTP/SCS would not result in direct population growth beyond anticipated growth in the region. Instead, they are designed to fully support the transportation needs of the growing population while implementing the infill development outlined in the SCS. The SCS is designed to accommodate growth by primarily encouraging infill development in Strategic Growth Areas (SGA), as shown in Figure 2.

The 2018 RTP/SCS transportation improvement projects are intended and designed to support the land use patterns established in the SCS. In addition, the transportation improvement projects contained in the 2018 RTP/SCS, including added projects since adoption of the 2015 RTP, would not substantially differ from those included in the 2015 RTP regarding geographic location, type, or size. As such, implementation of the 2018 RTP/SCS would not result in new or substantially more severe impacts regarding population growth compared with the 2015 RTP. In fact, the population growth forecast included in the 2018 RTP/SCS is the same as that of the 2015 RTP due to the nearly identical land use scenario envisioned by both the 2015 and 2018 RTP/SCSs and the close similarity in transportation improvement projects contained therein. Therefore, the 2018 RTP/SCS is consistent with projected and planned growth. Furthermore, all transportation improvement projects and the land use scenario envisioned by the 2018 RTP/SCS are anticipated by the general plans of the applicable local jurisdictions, as all improvements have been coordinated with the applicable local jurisdiction. This impact would be less than significant, similar to the 2015 RTP EIR.

LESS THAN SIGNIFICANT IMPACT

Figure 2 Strategic Growth Areas in Shasta County



Source: 2015 RTP, SRTA 2015.

16 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1 Fire protection?	☐	☐	☒	☐
2 Police protection?	☐	☐	☒	☐
3 Schools?	☐	☐	☒	☐
4 Parks?	☐	☐	☒	☐
5 Other public facilities?	☐	☐	☒	☐

- a.1. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?*
- a.2. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?*
- a.3. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?*
- a.4. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the*

construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

- a.5. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?*

Similar to the 2015 RTP, transportation projects under the 2018 RTP/SCS would not generate demand for police or fire services, schools, parks, or other public facilities. Future infill projects would increase demand on public services such as fire and police protection, schools, parks, or other public facilities. However, the land use scenario envisioned by the 2018 RTP/SCS is mostly the same as that contained in the 2015 RTP, with the exception of minor updates to land use information provided by local jurisdictions, and none of the modified or new projects in the 2018 RTP/SCS would contribute to population growth. Therefore, the 2018 RTP/SCS is not expected to generate additional demand for public facilities beyond what was already analyzed in the 2015 RTP. In addition, local member agencies would address any public service demand issues as development is proposed, which may require the reallocation of resources and/or augmentation of service areas. Impacts would be less than significant. No new or substantially more severe impacts related to public services would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

17 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
c. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

b. *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

Transportation projects under the 2018 RTP/SCS would not generate demand for park land. Future infill projects may increase demand on park land. However, this demand would not exceed that already anticipated by the respective areas in which these projects would be located. This is primarily because similar to the 2018 RTP/SCS, like the 2015 RTP, would not result in new population growth; rather it would redistribute future populations to existing urban cores. In addition, lead agencies would address any park land demand issues as development is proposed. No new or substantially more severe impacts related to recreational resources would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

18 Transportation/Traffic

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	■	□	□	□
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	■	□	□	□
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	□	□	□	■
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	□	□	□	■
e. Result in inadequate emergency access?	□	□	□	■
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	□	□	□	■

- a. *Would the project conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?*
- b. *Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?*

Shasta County is currently in attainment status for all federal AAQS (California Air Resources Board [CARB] 2017). As a result, Shasta County is not required to have a congestion management plan. However, travel demand models allow SRTA to obtain an understanding of the transportation network's performance characteristics (e.g., vehicle speeds, volume to capacity relationships, travel time, vehicle miles of travel, fuel consumption, and vehicle emissions) and estimate how socio-economic changes (e.g., population increases, land use development) will impact travel demand in the Shasta region. Traffic projections and related modeling for the 2018 RTP/SCS has been updated, as compared to the 2015 RTP, to ensure that the 2018 RTP/SCS complies with federal/state guidelines. Traffic conditions from buildout of the 2018 RTP/SCS differ from those in the 2015 RTP and new traffic modeling may result in changed EIR findings as compared to the 2015 RTP. New impacts related to traffic and circulation may occur and will be further analyzed in a Supplemental EIR.

POTENTIALLY SIGNIFICANT IMPACT

- c. *Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*
- d. *Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?*
- e. *Would the project result in inadequate emergency access?*

The 2018 RTP/SCS would improve the overall efficiency of the transportation system. The 2018 RTP/SCS would not impact air traffic patterns, create a traffic hazard due to a design feature or result in inadequate emergency access. No projects in the 2018 RTP/SCS would increase air service nor would they impact traffic circulation around airports. No new or substantially more severe impacts related to traffic and circulation would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

- f. *Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?*

As described in the 2015 RTP, the Redding Area Bus Authority (RABA) has developed transit performance standards that focus on overall system operations, such as: 99 percent of all fixed route transit trips should be no more than five minutes late. No other transit agency in the region has developed publicly available performance standards. However, MAP-21 and the FAST Act require the development of more performance measures related to transit assets and performance.

Transit projects included in the 2018 RTP/SCS would be consistent with applicable plans and policies because the transit improvements are intended to improve access to transit services and other alternative modes of transportation. Transit improvements or service expansions in the 2018 RTP/SCS, similar to the 2015 RTP, may contribute to a growth in transit use and reductions in VMT across Shasta County. No new or substantially more severe impacts related to transit would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

A number of bicycle facility planning documents have been prepared for the Shasta County region, including the GoShasta Active Transportation Plan, Shasta County 2010 Bicycle Transportation Plan (BTP), 2007 City of Anderson BTP, City of Redding Bikeway Action Plan 2010-2015, and City of Shasta Lake 2009 BTP. The 2018 RTP/SCS, similar to the 2015 RTP, contains numerous projects designed to improve bicycle and pedestrian facilities. Furthermore, the 2018 RTP/SCS includes goals and policies that support planning and building of bicycle and pedestrian facilities. No new or expanded facilities as compared to the 2015 RTP would result in significant adverse physical changes to existing bicycle facilities; thus, the 2018 RTP/SCS is consistent with applicable plans and policies, including bicycle and pedestrian plans. No new or substantially more severe impacts related to bicycle and pedestrian facilities would occur compared to the 2015 RTP as evaluated in the 2015 EIR. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

19 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- | | | | | |
|--|---|---|---|---|
| a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or | ■ | □ | □ | □ |
| b. 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 Public Resources Code Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. | ■ | □ | □ | □ |

- a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*
- b. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is 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 Public Resources Code Section 2024.1?*

California Assembly Bill 52 of 2014 (AB 52), enacted July 1, 2015, expands CEQA by defining a new resource category: “tribal cultural resources.” AB 52 establishes 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” (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and is:

1. *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or*
2. *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 Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.*

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

Assessment of potential impacts to tribal cultural resources was not incorporated into CEQA requirements until its update in 2016. Accordingly, assessment of potential impacts to tribal cultural resources was not included in the environmental review for the 2015 RTP. As a result, further investigation would be required in a supplemental EIR for the 2018 RTP/SCS. The consultation process under AB 52 has been initiated by SRTA with the Pit River Tribe and the Redding Rancheria. A summary of the results of the consultation process will be summarized in the Tribal Cultural Resources issue area analysis in the Supplemental EIR.

POTENTIALLY SIGNIFICANT IMPACT

20 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

- a. *Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

- b. *Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*
- c. *Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects??*
- d. *Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*
- e. *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*
- f. *Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*
- g. *Would the project comply with federal, state, and local statutes and regulations related to solid waste?*

Similar to the 2015 RTP, transportation improvements included in the 2018 RTP/SCS would not exceed wastewater treatment requirements, exceed existing water supplies, require construction or expansion of wastewater treatment facilities, require a determination by a wastewater treatment provider, or conflict with regulations pertaining to solid waste. However, transportation improvement projects included in the 2018 RTP/SCS may require construction of or improvements to stormwater drainage facilities. Subsequent environmental review of project-specific impacts would be required prior to approval and implementation to determine potential impacts and the appropriate application of mitigation measures. Construction activities may generate temporary quantities of solid waste that would need to be disposed of at local landfills. However, impacts would be temporary in nature and reduced by compliance with the California Green Building Code, which requires that construction operations recycle a minimum of 50 percent of waste generated.

Land use development projects would need to connect to existing sewer and water services or storm water drainage facilities, which would increase demand for wastewater treatment, water supplies or the need for expansion of storm water drainage facilities. In addition, sewer connections may need to be upgraded and resized to accommodate additional flow. The necessary improvements would be determined by local member agencies at the time such projects are proposed. Improvements would generally occur within existing utility easements and would therefore not be anticipated to create new environmental impacts. Similarly, such projects would generate solid waste, which may require landfill capacity. The land use scenario envisioned by the 2018 RTP/SCS is mostly the same as the 2015 RTP, with the exception of minor updates to land use information provided by local jurisdictions, and none of the modified or new projects included in the 2018 RTP/SCS would contribute to population growth. Therefore, the 2018 RTP/SCS is not expected to generate additional demand for utility services than what was already analyzed in the 2015 RTP. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. Have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

The above analysis has concluded that additional analysis relative to Air Quality, Greenhouse Gas Emissions, Transportation/Traffic, and Tribal Cultural Resources are warranted in a supplemental EIR. The discussion below relates to all other environmental topics included.

- a. *Does the project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*
- b. *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

- c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

The 2018 RTP/SCS would not result in new adverse impacts to biological resources beyond what has already been addressed in the 2015 RTP EIR. With the implementation of the above mitigation measures, the 2018 RTP/SCS would not threaten a significant biological resource, nor would it eliminate important examples of California history or prehistory. The 2018 RTP/SCS would not result in any changes to General Plan land use designations or zoning districts, would not result in annexation of land, and would not allow development in areas that are not already planned for development in the General Plans and Zoning Ordinances for Shasta County and the incorporated cities therein. Thus, the 2018 RTP/SCS does not have impacts that are cumulatively considerable, nor would it have substantial adverse effects on human beings. With the implementation of standard practices and mitigation measures required by the applicable lead agency, impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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Appendix A

Special Status Species and Sensitive Habitats

Special-Status Animal Species Known to or with Potential to Occur within Shasta County

Scientific Name Common Name	Status	Habitat Requirements
Mammals		
<i>Antrozous pallidus</i> pallid bat	None/None	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.
	G5 / S3	
	SSC	
<i>Aplodontia rufa californica</i> Sierra Nevada mountain beaver	None/None	Dense growth of small deciduous trees & shrubs, wet soil, & abundance of forbs in the Sierra Nevada & east slope. Needs dense understory for food & cover. Burrows into soft soil. Needs abundant supply of water.
	G5T3T4 / S2S3	
	SSC	
<i>Bassariscus astutus</i> ring-tail	None/None	Riparian habitats and in brush stands of most forest and shrub habitats. Nests in rock recesses, hollow trees, logs, snags, abandoned burrows or woodrat nests.
	G4 / S3	
	FP	
<i>Canis lupis</i> gray wolf	Endangered/Endangered	Extremely wide-ranging across hardwood and coniferous forests, sagebrush, grasslands, and other habitats. Generally prefers areas with abundant prey and relatively low levels of human disturbance.
	G4 / S1	
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	None/None	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.
	G3G4 / S2	
	SSC	
<i>Erethizon dorsatum</i> North American porcupine	None/None	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges. Wide variety of coniferous and mixed woodland habitat.
	G5 / S3	
<i>Euderma maculatum</i> spotted bat	None/None	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.
	G4 / S3	
	SSC	

Scientific Name Common Name	Status	Habitat Requirements
<i>Gulo gulo</i> California wolverine	Proposed Threatened/Threatened G4 / S1 FP	Found in the north coast mountains and the Sierra Nevada. Found in a wide variety of high elevation habitats. Needs water source. Uses caves, logs, burrows for cover and den area. Hunts in more open areas. Can travel long distances.
<i>Lasionycteris noctivagans</i> silver-haired bat	None/None G5 / S3S4	Primarily a coastal and montane forest dweller, feeding over streams, ponds & open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.
<i>Lasiurus blossevillii</i> western red bat	None/None G5 / S3 SSC	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.
<i>Lasiurus cinereus</i> hoary bat	None/None G5 / S4	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.
<i>Lepus americanus klamathensis</i> Oregon snowshoe hare	None/None G5T3T4Q / S2 SSC	Above the yellow pine zone in Canadian and Hudsonian provinces in Northern California. Alder and willow thickets in riparian zone, also thickets of young conifers.
<i>Martes caurina sierrae</i> Sierra marten	None/None G5T3 / S3	Mixed evergreen forests with more than 40% crown closure along Sierra Nevada and Cascade mountains. Needs variety of different-aged stands, particularly old-growth conifers and snags which provide cavities for dens/nests.
<i>Myotis evotis</i> long-eared myotis	None/None G5 / S3	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.

Scientific Name Common Name	Status	Habitat Requirements
<i>Myotis thysanodes</i> fringed myotis	None/None G4 / S3	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood & hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.
<i>Myotis volans</i> long-legged myotis	None/None G5 / S3	Most common in woodland and forest habitats above 4000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.
<i>Myotis yumanensis</i> Yuma myotis	None/None G5 / S4	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.
<i>Ochotona princeps schisticeps</i> gray-headed pika	None/None G5T2T4 / S2S4	Mountainous areas, generally at higher elevations, often above the treeline up to the limit of vegetation. At lower elevations found in rocky areas within forests or near lakes. Talus slopes, occasionally on mine tailings. Prefers talus-meadow interface.
<i>Pekania pennanti</i> fisher - West Coast DPS	Proposed Threatened/Candidate Threatened G5T2T3Q / S2S3 SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.
<i>Taxidea taxus</i> American badger	None/None G5 / S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.
<i>Vulpes vulpes necator</i> Sierra Nevada red fox	Candidate/Threatened G5T1T2 / S1	Historically found from the Cascades down to the Sierra Nevada. Found in a variety of habitats from wet meadows to forested areas. Use dense vegetation and rocky areas for cover and den sites. Prefer forests interspersed with meadows or alpine fell-fields.
Birds		

Scientific Name Common Name	Status	Habitat Requirements
<i>Accipiter cooperii</i> Cooper's hawk	None/None G5 / S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.
<i>Accipiter gentilis</i> northern goshawk	None/None G5 / S3 SSC	Within, and in vicinity of, coniferous forest. Uses old nests, and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.
<i>Accipiter striatus</i> sharp-shinned hawk	None/None G5 / S4 WL	Ponderosa pine, black oak, riparian deciduous, mixed conifer & Jeffrey pine habitats. Prefers riparian areas. North-facing slopes, with plucking perches are critical requirements. Usually nests within 275 feet of water.
<i>Agelaius tricolor</i> tricolored blackbird	None/Candidate Endangered G2G3 / S1S2 SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.
<i>Ardea alba</i> great egret	None/None G5 / S4	Colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.
<i>Ardea herodias</i> great blue heron	None/None G5 / S4	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.
<i>Aquila chrysaetos</i> golden eagle	None/None G5 / S3 WL, FP	Coastal belt of Santa Cruz and Monterey counties; central & southern Sierra Nevada; San Bernardino & San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.

Scientific Name Common Name	Status	Habitat Requirements
<i>Asio flammeus</i> short-eared owl	None/None G5 / S3 SSC	Open, treeless areas with elevated sites for perches and dense vegetation for roosting and nesting.
<i>Asio otus</i> long-eared owl	None/None G5 / S3 ? SSC	Dense riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats; also found in dense conifer stands at higher elevations.
<i>Athene cunicularia</i> western burrowing owl	None/None G4 / S3 SSC	Grasslands and ruderal habitats where ground squirrel burrows are available for nesting.
<i>Buteo swainsoni</i> Swainson's hawk	None/Threatened G5 / S3 SSC	Agricultural fields, annual grasslands, sage-juniper flats, & desert. The bird is attracted to haying, mowing, and plowing operations, which provide opportunistic foraging on small mammals and grasshoppers.
<i>Chaetura vauxi</i> vaux's swift	None/None G5 / S2S3 SSC	Prefers redwood and Douglas-fir habitats, nests in hollow trees and snags or, occasionally, in chimneys; forages aerially.
<i>Circus cyaneus</i> northern harrier	None/None G5 / S3 SSC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	Threatened/Endangered G5T2T3 / S1	Riparian forest nester along the broad, lower flood-bottoms of larger river systems. Nests in riparian forests of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.

Scientific Name Common Name	Status	Habitat Requirements
<i>Cypseloides niger</i> black swift	None/None G4 / S2 SSC	Coastal belt of Santa Cruz and Monterey counties; central & southern Sierra Nevada; San Bernardino & San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.
<i>Empidonax traillii</i> willow flycatcher	None/Endangered G5 / S1S2	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000-8000 ft elevation. Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.
<i>Falco peregrinus anatum</i> American peregrine falcon	Delisted/Delisted G4T4 / S3S4 FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.
<i>Grus canadensis tabida</i> greater sandhill crane	None/Threatened G5T4 / S2 FP	Nests in wetland habitats in northeastern California; winters in the Central Valley. Prefers grain fields within 4 miles of a shallow body of water used as a communal roost site; irrigated pasture used as loafing sites.
<i>Haliaeetus leucocephalus</i> bald eagle	Delisted/Endangered G5 / S3 FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.
<i>Icteria virens</i> yellow-breasted chat	None/None G5 / S3 SSC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.
<i>Lanius ludovicianus</i> Loggerhead shrike	None/None G4 / S4 SSC	Forages in open grassland habitats throughout the Central Valley of California. Nests in shrubs and trees.

Scientific Name Common Name	Status	Habitat Requirements
<i>Laterallus jamaicensis coturniculus</i> California black rail	None/Threatened G3G4T1 / S1 FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.
<i>Pandion haliaetus</i> osprey	None/None G5 / S4 WL	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.
<i>Phalacrocorax auritus</i> double-crested cormorant	None/None G4 / S4 SSC	Colonial nester on coastal cliffs, offshore islands, & along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.
<i>Picoides arcticus</i> black-backed woodpecker	None/None G5 / S2	Coniferous forests in the Sierra Nevada and Cascades to the Siskiyou Mountains. Recently burned coniferous forest, areas with dense standing dead trees, and less commonly in unburned forests.
<i>Progne subis</i> purple martin	None/None G5 / S3 SSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly; also in human-made structures. Nest often located in tall, isolated tree/snag.
<i>Riparia riparia</i> bank swallow	None/Threatened G5 / S2	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.
<i>Setophaga petechia</i> yellow warbler	None/None G5 / S3S4	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.

Scientific Name Common Name	Status	Habitat Requirements
<i>Strix occidentalis caurina</i> northern spotted owl	Threatened/Threatened G3T3 / S2S3 SSC	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.
Reptiles		
<i>Emys marmorata</i> western pond turtle	None/None G3G4 / S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.
Amphibians		
<i>Ambystoma macrodactylum</i> <i>sigillatum</i> southern long-toed salamander	None/None G5T4 / S3 SSC	High elevation meadows and lakes in the Sierra Nevada, Cascade, and Klamath mountains. Aquatic larvae occur in ponds and lakes. Outside of breeding season adults are terrestrial and associated with underground burrows of mammals and moist areas under logs and rocks.
<i>Ascaphus truei</i> Pacific tailed frog	None/None G4 / S3S4 SSC	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.
<i>Hydromantes shastae</i> Shasta salamander	None/Threatened G1G2 / S3	Cool, wet ravines and valleys; dominant vegetation is oak woodland or chaparral, also pine and fir; 100 to 2550 ft elevation. Seeks cover under surface objects such as logs, rocks, and limestone slabs or talus, near limestone fissures or caves.
<i>Rana boylei</i> foothill yellow-legged frog	None/Candidate Threatened G3 / S3 SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.

Scientific Name Common Name	Status	Habitat Requirements
<i>Rana draytonii</i> California red-legged frog	Threatened/None G2G3 / S2S3 SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.
<i>Rana cascadae</i> Cascades frog	None/None G3G4 / S3 SSC	Montane aquatic habitats such as mountain lakes, small streams, and ponds in meadows; open coniferous forests. Standing water required for reproduction. Hibernates in mud on the bottom of lakes and ponds during the winter.
<i>Spea hammondi</i> western spadefoot	None/None G3 / S3 SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.
Fish		
<i>Acipenser medirostris</i> southern green sturgeon	Threatened/None G3 / S1S2 SSC	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers. Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock
<i>Cottus asperimus</i> rough sculpin	None/Threatened G2 / S2 FP	Restricted to the Pit River above and below the falls at Burney, and the Hat Creek & Fall River subdrainages. Found mostly on the muddy bottoms of large streams.
<i>Cottus klamathensis macrops</i> bigeye marbled sculpin	None/None G4T3 / S2S3 SSC	Found in the Pit River system and 3 tributaries: Hat Creek, Burney Creek & the Fall River system. Large, clear, cool spring-fed streams, but sometimes found in reservoirs. Prefers abundant vegetation and coarse substrates.

Scientific Name Common Name	Status	Habitat Requirements
<i>Entosphenus tridentatus</i> Pacific lamprey	None/None G4 / S4 SSC	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining. Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.
<i>Hypomesus transpacificus</i> delte smelt	Threatened/Endangered G1 / S1	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait & San Pablo Bay. Seldom found at salinities > 10 ppt. Most often at salinities < 2ppt.
<i>Lampetra ayresii</i> river lamprey	None/None G4 / S3 SSC	Lower Sacramento River, San Joaquin River, and Russian River. May occur in coastal streams north of San Francisco Bay. Adults need clean, gravelly riffles, ammocoetes need sandy backwaters or stream edges, good water quality and temps < 25 C.
<i>Lavinia symmetricus mitrulus</i> Pit roach	None/None G4T2 / S2 SSC	Found in the upper Pit River and its tributaries, and tributaries to Goose Lake. Found in deep pools, but also in areas of low flows, moderate gradients, warm temperatures and mats of vegetation.
<i>Mylopharodon conocephalus</i> hardhead	None/None G3 / S3 SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic centrarchids predominate.
<i>Oncorhynchus mykiss irideus</i> Steelhead – Central Valley DPS	Threatened/None G5T2Q / S2	Spawn and rear in Sacramento River and its tributaries. Requires cool, swift, shallow water; clean, loose gravel for spawning; and runs and suitable large pools in which to rear and over-summer.
<i>Oncorhynchus mykiss ssp. 2</i> McCloud River redband trout	None/None G5T1T2Q / S1S2 SSC	Lives in small spring-fed tributaries of the McCloud River. Water temperatures are cold (<15 C), flow is 1-40 CFS.

Scientific Name Common Name	Status	Habitat Requirements
<i>Oncorhynchus tshawytscha</i> Chinook salmon – Sacramento River winter-run ESU	Endangered/Endangered G5 / S1	Spawn and rear in main-stem Sacramento River. Require cool year-round water temperatures, since spawning occurs during the summer. Requires deep pools and riffles, and clean gravel and cobble substrate to spawn.
<i>Oncorhynchus tshawytscha</i> Chinook salmon – Central Valley spring-run ESU	Threatened/Threatened G5 / S1	Spawn and rear in main-stem Sacramento River and suitable perennial tributaries. Require cool year-round water temperatures and deep pools for over-summering habitat. Spawn in riffles with gravel and cobble substrate.
<i>Oncorhynchus tshawytscha</i> Chinook salmon – Central Valley fall/late fall-run ESU	None/None G5 / S2	Spawn and rear in main-stem Sacramento River and suitable perennial tributaries. Require cool year-round water temperatures and deep pools for over-summering habitat. Spawn in riffles with gravel and cobble substrate.
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	None/None GNR / S3	Shallow, dead-end sloughs with submerged vegetation.
<i>Salvelinus confluentus</i> bull trout	Threatened/Endangered G4 / SX	In California, they were found only in the McCloud River in Shasta County. Bottom dwellers that require deep pools in cold water rivers. Need gravel riffles and large volumes of cold water to spawn.
<i>Spirinchus thaleichthys</i> longfin smelt	Candidate/Threatened G5 / S1 SSC	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.
invertebrates		
<i>Anthicus antiochensis</i> Antioch Dunes anthicid beetle	None/None G1 / S1	Extirpated from Antioch Dunes but present in several localities along the Sacramento and Feather rivers.

Scientific Name Common Name	Status	Habitat Requirements
<i>Anthicus sacramento</i> Sacramento anthicid beetle	None/None G1 / S1	Restricted to sand dune areas. Inhabit sand slipfaces among bamboo and willow but may not depend on presence of these plant species.
<i>Atractelmis wawona</i> Wawona riffle beetle	None/None G1G3 / S1S2	Aquatic; found in riffles of rapid, small to medium clear mountain streams; 2000-5000 ft elev. Strong preference for inhabiting submerged aquatic mosses
<i>Bombus caliginosus</i> obscure bumble bee	None/None G4? / S1S2	Coastal areas from Santa Barbara county to north to Washington state. Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.
<i>Bombus morrisoni</i> Morrison bumble bee	None/None G4G5 / S1S2	From the Sierra-Cascade ranges eastward across the intermountain west. Food plant genera include Cirsium, Cleome, Helianthus, Lupinus, Chrysothamnus, and Melilotus.
<i>Bombus occidentalis</i> western bumble bee	None/None G2G3 / S1	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.
<i>Branchinecta conservatio</i> Conservancy Fairy Shrimp	Endangered/None G2 / S2	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	Threatened/None G3 / S3	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.

Scientific Name Common Name	Status	Habitat Requirements
<i>Colligyrus convexus</i> canary dusksnail	None/None G1G2 / S1S2	Limnocrenes & hyporheic streams in the Pit River basin. Most abundant on the undersides of cobbles and boulders in shallow to moderate depths.
<i>Cryptochia shasta</i> confusion caddisfly	None/None G1G2 / S1S2	Creeks. Only found in Shasta Co., California, near Castle Crags State Park.
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	Threatened/None G3T2 / S2	Occurs only in the Central Valley of California, in association with blue elderberry (<i>Sambucus mexicana</i>). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.
<i>Ecclisomyia bilera</i> Kings Creek ecclisomyian caddisfly	None/None G1G2 / S1S2	Narrowly distributed in springs in the Sierra Nevada & Cascades.
<i>Fluminicola seminalis</i> nugget pebblesnail	None/None G2 / S1S2	Originally from near mouth of the Sacramento River upstream into the Pit River. Now extirpated from the Sacramento River
<i>Gonidea angulata</i> western ridged mussel	None/None G3 / S1S2	Primarily creeks & rivers & less often lakes. Originally in most of state, now extirpated from Central & Southern Calif.
<i>Helisoma newberryi</i> Great Basin rams-horn	None/None G1 / S1S2	Larger lakes & slow rivers, including larger spring sources and spring-fed creeks. Snails burrow in soft mud.
<i>Helminthoglypta hertleini</i> Oregon shoulderband	None/None G1 / S1S2	Found on basaltic talus slopes; partial riparian associate. Found wherever permanent ground cover/moisture is available. Somewhat adapted to dry conditions during a portion of the year.

Scientific Name Common Name	Status	Habitat Requirements
<i>Hesperarion plumbeus</i> leaden slug	None/None G1 / S1	Castle Creek in Shasta County, California
<i>Hydroporus leechi</i> Leech's skyline diving beetle	None/None G1? / S1?	Shallow freshwater ponds.
<i>Juga acutifilosa</i> topaz juga	None/None G2 / S2	Cold, well-oxygenated, unpolluted water, generally with stable gravel substrate.
<i>Juga occata</i> scalloped juga	None/None G1 / S1	Occurs in large freshwater rivers. Current distribution includes the Pit River below the falls in Shasta Co, Shasta National Forest, and Lassen National Forest.
<i>Lanx patelloides</i> kneecap lanx	None/None G2 / S2	Endemic to upper Sacramento River system. Breathe entirely through mantle, and are very sensitive to polluted water. Prefers fast, cold, well-oxygenated water and cobble-boulder substrate.
<i>Lepidurus packardi</i> vernal pool tadpole shrimp	Endangered/None G4 / S3S4	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.
<i>Linderiella occidentalis</i> California linderiella	None/None G2G3 / S2S3	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and total dissolved solids.
<i>Margaritifera falcata</i> western pearlshell	None/None G4G5 / S1S2	Aquatic. Prefers lower velocity waters.

Scientific Name Common Name	Status	Habitat Requirements
<i>Monadenia churchi</i> Klamath sideband	None/None G2G3 / S2	Lives mostly in limestone outcrops, caves, talus slides, and lava rockslides, but also occurs under forest debris in heavy shade on wooded hillsides.
<i>Monadenia troglodytes troglodytes</i> Shasta sideband	None/None G1G2T1T2 / S1S2	Associated with limestone terrain in Shasta and Siskiyou counties. Associated with pine-oak woodlands.
<i>Monadenia troglodytes wintu</i> Wintu sideband	None/None G1G2T1T2 / S1S2	Occurs in Shasta County.
<i>Pacifastacus fortis</i> Shasta crayfish	Endangered/Endangered G1 / S1	Found only in the Fall and Hat creek sub-drainages of the Pit River system. Inhabits cool, clear water with low gradient and temperature variability; substrate is volcanic rubble on sand/gravel; little vegetation.
<i>Parapsyche extensa</i> King's Creek parapsyche caddisfly	None/None GH / SH	Known only from King's Creek Meadow, Mt Lassen National Park. Habitat in King's Creek is cobble, sand, small rubble substratum, and a grassy shoreline.
<i>Pisidium ultramontanum</i> montane peaclam	None/None G1 / S1	Found in spring-influenced streams, lakes, and pools in northeastern California. Strongly associated with sands or small clean gravels.
<i>Pyrgulopsis archimedis</i> Archimedes pyrg	None/None G1G2 / S1S2	Springs and streams in the Pit and Klamath basins. Snails typically found on mud substrate.
<i>Pyrgulopsis rupinicola</i> Sucker Springs pyrg	None/None G1 / S1	Endemic to a single site in the Pit River basin. Found in a large, cold spring outflow with slow to moderate current.

Scientific Name Common Name	Status	Habitat Requirements
<i>Rhyacophila lineata</i> Castle Crag rhyacophilan caddisfly	None/None G1G3 / S1S2	Creeks.
<i>Rhyacophila mosana</i> bilobed rhyacophilan caddisfly	None/None G1G2Q / S1S2	Known only from Castle Crag State Park, Shasta County.
<i>Trilobopsis roperi</i> Shasta chaparral	None/None G1 / S1	Occurs in open to dense chaparral, hardwood, hardwood-conifer, and riparian habitats with rocky, gravelly substrates, and within and in the vicinity of limestone outcrops.
<i>Trilobopsis tehamana</i> Tehama chaparral	None/None G1 / S1	Endemic to Butte, Tehama, and Siskiyou counties. Usually found in rocky talus, but has also been found under leaf litter or woody debris within 100 meters of limestone outcrops.
<i>Vespericola shasta</i> Shasta hesperian	None/None G1 / S1	Primarily found in the vicinity of Shasta Lake, up to 915 meters elevation. Moist bottom lands such as riparian areas, springs, seeps, marshes, and in the mouths of caves.
FE = Federally Endangered FT = Federally Threatened SE = State Endangered ST = State Threatened SR = State Rare SSC = State Species of Special Concern WL = State Watch List G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDDB RareFind3.		

Special-Status Animal Species Known to or with Potential to Occur within Shasta County

Scientific Name	Status Fed/State ESA G-Rank/S-Rank	Habitat Requirements
Common Name	CDFW	
Plants		
<i>Adiantum shastense</i> Shasta maidenhair fern	None/None G3 / S3 4.3	Lower montane coniferous forest. Sometimes carbonate. 330-1535 m.
<i>Ageratina shastensis</i> Shasta ageratina	None/None G3 / S3 1B.2	Chaparral, lower montane coniferous forest. Rocky, sometimes limestone. 365-1725 m.
<i>Agrostis hendersonii</i> Henderson's bent grass	None/None G2Q / S2 3.2	Valley and foothill grassland, vernal pools. Moist places in grassland or vernal pool habitat. 65-1030 m.
<i>Allium hoffmanii</i> Beegum onion	None/None G4 / S4 4.3	Lower montane coniferous forest. Serpentine substrates. 1100-1800 m.
<i>Allium sanbornii</i> var. <i>sanbornii</i> Sanborn's onion	None/None G3T4? / S4? 4.2	Chaparral, cismontane woodland, lower montane coniferous forest. Usually on serpentine outcrops. 260-1510 m.
<i>Anisocarpus scabridus</i> scabrid alpine tarplant	None/None G3 / S3 1B.3	Upper montane coniferous forest. Open stony ridges, metamorphic scree slopes of mountain peaks, and cliffs in or near red fir forest. 1550-2350 m.
<i>Anomobryum julaceum</i> slender silver moss	None/None G5? / S2 4.2	Broad-leafed upland forest, lower montane coniferous forest, north coast coniferous forest. Moss which grows on damp rocks and soil; acidic substrates. Usually seen on roadcuts. 100-1000 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Anthoxanthum nitens ssp. nitens</i> vanilla-grass	None/None G5 / S2 2B.3	Meadows and seeps. Wet sites. 3-1895 m.
<i>Arctostaphylos klamathensis</i> Klamath manzanita	None/None G3? / S3? 1B.2	Chaparral (montane), lower montane coniferous forest, upper montane coniferous forest, subalpine coniferous forest. Rocky outcrops and slopes, sometimes on serpentine. 1430-2250 m.
<i>Arctostaphylos malloryi</i> Mallory's manzanita	None/None G3 / S3 4.3	Chaparral, lower montane coniferous forest. Volcanic soils. 800-1275 m.
<i>Arctostaphylos manzanita ssp. elegans</i> Konocti manzanita	None/None G5T3 / S3 1B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Volcanic soils. 225-1830 m.
<i>Arnica venosa</i> Shasta County arnica	None/None G3 / S3 4.2	Cismontane woodland, lower montane coniferous forest. Often in disturbed areas. 335-1490 m.
<i>Asarum marmoratum</i> marbled wild-ginger	None/None G4 / S2 2B.3	Lower montane coniferous forest. Understory of coniferous forests. 485-1630 m.
<i>Asclepias solanoana</i> serpentine milkweed	None/None G3 / S3 4.2	Chaparral, cismontane woodland, lower montane coniferous forest. Grows on serpentine soils; confined to clearings and gentle slopes with southern exposure. 230-1860 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Asplenium septentrionale</i> northern spleenwort	None/None G4G5 / S3 2B.3	Chaparral, lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest. Forms grass-like tufts in granitic rock crevices. 1705-3355 m.
<i>Astragalus inversus</i> Susanville milk-vetch	None/None G4 / S4 4.3	Lower coniferous forest, Great Basin scrub, pinyon and juniper woodland. Plains and thinly wooded hills, in dry, stony basaltic or pumice soils, among sagebrush or xeric pine forest; often in disturbed sites. 950-1850 m.
<i>Astragalus lemmonii</i> Lemmon's milk-vetch	None/None G2 / S2 1B.2	Great Basin scrub, meadows and seeps, marshes and swamps. Lakeshores, meadows and seeps. 1007-2200 m.
<i>Astragalus pauperculus</i> depauperate milk-vetch	None/None G4 / S4 4.3	Chaparral, cismontane woodland, valley and foothill grassland. Stony flats and shallow depressions, thin soils of red sand or clay of volcanic origin; vernal mesic. 60-1215 m.
<i>Astragalus pulsiferae</i> var. <i>suksdorfii</i> Suksdorf's milk-vetch	None/None G4T2 / S2 1B.2	Great Basin scrub, lower montane coniferous forest, pinyon and juniper woodland. Volcanic or clay soil; often gravelly or rocky. 155-1985 m.
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	None/None G2 / S2 1B.2	Chaparral, valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1465 m.
<i>Boechera serpenticola</i> serpentine rockcress	None/None G1 / S1 1B.2	Lower montane coniferous forest, upper montane coniferous forest. Serpentine ridges and talus. 1125-2090 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Boechera shevockii</i> Shevock's rockcress	None/None G1 / S1 1B.1	Upper montane coniferous forest. Rock outcrops and ledges. 2470-2500 m.
<i>Botrychium ascendens</i> upswept moonwort	None/None G3G4 / S2 2B.3	Lower montane coniferous forest, meadows and seeps. Grassy fields, coniferous woods near springs and creeks. 1115-3265 m.
<i>Botrychium crenulatum</i> scalloped moonwort	None/None G4 / S3 2B.2	Bogs and fens, meadows and seeps, upper montane coniferous forest, lower montane coniferous forest, marshes and swamps. Moist meadows, freshwater marsh, and near creeks. 1185-3110 m.
<i>Botrychium minganense</i> Mingan moonwort	None/None G4G5 / S3 2B.2	Lower montane coniferous forest, upper montane coniferous forest, bogs and fens, meadows and seeps. Creekbanks in mixed conifer forest. 1190-3295 m.
<i>Botrychium montanum</i> western goblin	None/None G3 / S2 2B.1	Lower montane coniferous forest, upper montane coniferous forest, meadows and seeps. Creekbanks in old-growth forest. 1430-2430 m.
<i>Botrychium pinnatum</i> northwestern moonwort	None/None G4? / S2 2B.3	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Creekbanks. 1645-2045 m.
<i>Botrypus virginianus</i> rattlesnake fern	None/None G5 / S2 2B.2	Bogs and fens, lower montane coniferous forest, meadows and seeps, riparian forest. 710-1405 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Brasenia schreberi</i> watershield	None/None G5 / S3 2B.3	Freshwater marshes and swamps. Aquatic from water bodies both natural and artificial in California. 30-2200 m.
<i>Brodiaea matsonii</i> Sulphur Creek brodiaea	None/None G1 / S1 1B.1	Cismontane woodland, meadows and seeps. Streambanks. In cracks and crevices of metamorphic amphibolite schist. 195-220 m.
<i>Brodiaea rosea</i> Indian Valley brodiaea	None/Endangered G2 / S2 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland. Serpentine gravelly creek bottoms, and in meadows and swales. 340-1130 m.
<i>Bulbostylis capillaris</i> thread-leaved beakseed	None/None G5 / S3 4.2	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. 395-2075 m.
<i>Calandrinia breweri</i> Brewer's calandrinia	None/None G4 / S4 4.2	Chaparral, coastal scrub. Sandy or loamy soils. Disturbed sites, burns. 10-1200 m.
<i>Calochortus longebarbatus</i> var. <i>longebarbatus</i> long-haired star-tulip	None/None G4T3 / S3 1B.2	Meadows and seeps, lower montane coniferous forest, Great Basin scrub, vernal pools. In wet meadows or grassy areas along drainages within forest. Clay soils. 975-2865 m.
<i>Calochortus syntrophus</i> Callahan's mariposa-lily	None/None G1 / S1 1B.1	Cismontane woodland, valley and foothill grassland. In vernal mesic areas. 430-1220 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i> Butte County morning-glory	None/None G5T3 / S3 4.2	Chaparral, lower montane coniferous forest. Dry, mostly open slopes. Rocky substrates. 565-1525 m.
<i>Campanula scabrella</i> rough harebell	None/None G4 / S4 4.3	Alpine boulder and rock field. Rocky sites on serpentine or volcanics. 2285-2800 m.
<i>Campanula shetleri</i> Castle Crags harebell	None/None G2 / S2 1B.3	Lower montane coniferous forest. In protected rock crevices in granite. 1215-1830 m.
<i>Cardamine bellidifolia</i> var. <i>pachyphylla</i> fleshy toothwort	None/None G5T4 / S3 4.3	Alpine boulder and rock field, subalpine coniferous forest, upper montane coniferous forest. Rocky sites; talus and scree. 900-2835m.
<i>Carex buxbaumii</i> Buxbaum's sedge	None/None G5 / S3 4.2	Bogs and fens, meadows and seeps, marshes and swamps. Mesic sites. 3-3300 m.
<i>Carex comosa</i> bristly sedge	None/None G5 / S2 2B.1	Marshes and swamps, coastal prairie, valley and foothill grassland. Lake margins, wet places; site below sea level is on a Delta island. -5-1620 m.
<i>Carex lasiocarpa</i> woolly-fruited sedge	None/None G5 / S2 2B.3	Bogs and fens, marshes and swamps. Sphagnum bogs, freshwater marsh, lake margins. 600-1950 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Carex petasata</i> Liddon's sedge	None/None G5 / S3 2B.3	Broad-leaved upland forest, lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland. 835-3030 m.
<i>Carex scoparia</i> var. <i>scoparia</i> pointed broom sedge	None/None G5T5 / SX 2A	Great Basin scrub. Wet, open places. 1210 m.
<i>Castilleja lasseensis</i> Lassen paintbrush	None/None G3 / S3 1B.3	Subalpine coniferous forest, meadows and seeps. Volcanic. 955-3120 m.
<i>Castilleja rubicundula</i> var. <i>rubicundula</i> pink creamsacs	None/None G5T2 / S2 1B.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland. Openings in chaparral or grasslands. On serpentine. 20-915 m.
<i>Ceanothus purpureus</i> holly-leaved ceanothus	None/None G2 / S2 1B.2	Chaparral, cismontane woodland. Rocky, volcanic slopes. 145-780 m.
<i>Clarkia borealis</i> ssp. <i>arida</i> Shasta clarkia	None/None G3T2 / S2 1B.1	Cismontane woodland, lower montane coniferous forest. Openings. 425-595 m.
<i>Clarkia borealis</i> ssp. <i>borealis</i> northern clarkia	None/None G3T3 / S3 1B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Often seen in roadcuts. 345-1540 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Collomia diversifolia</i> serpentine collomia	None/None G4 / S4 4.3	Chaparral, cismontane woodland. On ultramafic soils, rocky or gravelly sites. 300-600 m.
<i>Collomia larsenii</i> talus collomia	None/None G4 / S2 2B.2	Alpine boulder and rock field, closed-cone coniferous forest, subalpine coniferous forest, upper montane coniferous forest. In loose volcanic material on high volcanic peaks, red rhyolite scree slopes, talus, loose gravel. 2205-3050 m.
<i>Cordylanthus tenuis ssp. pallescens</i> pallid bird's-beak	None/None G4G5T1 / S1 1B.2	Lower montane coniferous forest. Gravelly openings in brush patches next to coniferous forest; on volcanic alluvium. 1070-1615 m.
<i>Crataegus castlegarensis</i> Calstlegar hawthorne	None/None G5 / S1S3 3	Riparian woodland. Moist rocky loam. 0-975 m.
<i>Cryptantha crinita</i> silky cryptantha	None/None G2 / S2 1B.2	Cismontane woodland, valley foothill grassland, lower montane coniferous forest, riparian forest, riparian woodland. In gravelly streambeds. 35-1220 m.
<i>Cryptantha dissita</i> serpentine cryptantha	None/None G2 / S2 1B.2	Chaparral. Serpentine outcrops. 135-735 m.
<i>Cypripedium californicum</i> California lady's-slipper	None/None G4 / S4 4.2	Lower montane coniferous forest, bogs and fens. In perennial seepages on serpentine substrate and in gravel along creek margins. 30-2750 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Cypripedium fasciculatum</i> clustered lady's-slipper	None/None G4 / S4 4.2	North Coast coniferous forest, lower montane coniferous forest. In serpentine seeps and moist streambanks. 100-2435 m.
<i>Cypripedium montanum</i> mountain lady's-slipper	None/None G4 / S4 4.2	Lower montane coniferous forest, broad-leaved upland forest, cismontane woodland, north coast coniferous forest. On dry, undisturbed slopes. 185-2225 m.
<i>Darlingtonia californica</i> California pitcherplant	None/None G4 / S4 4.2	Bogs and fens, meadows and seeps. On ultramafic soils.
<i>Diplacus pygmaeus</i> Egg Lake monkeyflower	None/None G4 / S3 4.2	Great Basin scrub, lower montane coniferous forest, meadows and seeps, pinyon-juniper woodland. Damp sites in meadows, along streams and on muddy soil of desiccating pools. Volcanic, clay soils. 500-1840 m.
<i>Draba aureola</i> golden alpine draba	None/None G4 / S2 1B.3	Alpine boulder and rock field, subalpine coniferous forest. On serpentine or volcanic outcrops. 2315-3050 m.
<i>Draba howellii</i> Howell's draba	None/None G4 / S4 4.3	Subalpine coniferous forest. Rocky habitats. 1370-3000 m.
<i>Drosera anglica</i> English sundew	None/None G5 / S2 2B.3	Bogs and fens, meadows and seeps. 600-2045 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Epilobium oreganum</i> Oregon fireweed	None/None G2 / S2 1B.2	Bogs and fens, meadows and seeps, lower montane coniferous forest, upper montane coniferous forest. In and near springs and bogs; at least sometimes on serpentine. 575-2075 m.
<i>Epilobium siskiyouense</i> Siskiyou fireweed	None/None G3 / S3 1B.3	Alpine boulder and rock field, subalpine coniferous forest, upper montane coniferous forest. On slopes in gravelly, serpentine soils. 1675-2440 m.
<i>Eriastrum tracyi</i> Tracy's eriastrum	None/Rare G3Q / S3 3.2	Chaparral, cismontane woodland, valley and foothill grassland. Gravelly shale or clay; often in open areas. 315-2400 m.
<i>Ericameria ophitidis</i> serpentine goldenbush	None/None G4 / S4 4.3	Lower montane coniferous forest, chaparral. Open areas on dry, rocky serpentine soil. 1180-1740 m.
<i>Erigeron elegantulus</i> volcanic daisy	None/None G4 / S4 4.3	Alpine boulder & rock field, Great Basin scrub, pinyon & juniper woodland, subalpine coniferous forest, upper montane coniferous forest. In sandy to gravelly loam, volcanic soils. 1000-2665 m.
<i>Erigeron inornatus</i> var. <i>calidipetris</i> hot rock daisy	None/None G5T4 / S4 4.3	Lower montane coniferous forest. Loose sand, lava beds, depression edges, to pine/fir woods. 1100-1935 m.
<i>Erigeron nivalis</i> snow fleabane daisy	None/None G4G5 / S3 2B.3	Alpine boulder and rock field, meadows and seeps, subalpine coniferous forest. On volcanic rock outcrops in cracks and crevices. 1735-2900 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Erigeron petrophilus</i> var. <i>viscidulus</i> Klamath rock daisy	None/None G4T4 / S4 4.3	Chaparral, lower montane coniferous forest, upper montane coniferous forest, meadows and seeps. Rocky foothills to montane forest, sometimes on serpentine. 1500-2700 m.
<i>Eriogonum congdonii</i> Congdon's buckwheat	None/None G4 / S4 4.3	Lower montane coniferous forest. Serpentine; exposed rocky slopes. 1000-2345 m.
<i>Eriogonum libertini</i> Dubakella Mountain buckwheat	None/None G4 / S4 4.2	Chaparral, lower montane coniferous forest. Dry serpentine slopes. 1120-1720 m.
<i>Eriogonum pyrolifolium</i> var. <i>pyrolifolium</i> pyrola-leaved buckwheat	None/None G4T4 / S3 2B.3	Alpine boulder and rock field. Sandy or gravelly sites; on pumice. 1675-3200 m.
<i>Eriogonum umbellatum</i> var. <i>humistratum</i> Mt. Eddy buckwheat	None/None G5T4 / S4 4.3	Upper montane coniferous forest, alpine boulder & rock field, chaparral, subalpine coniferous forest, meadows and seeps. On serpentine soils or outcrops. Occurs in meadows within forest. 1700-2800 m.
<i>Eriogonum ursinum</i> var. <i>erubescens</i> blushing wild buckwheat	None/None G3G4T3 / S3 1B.3	Lower montane coniferous forest, montane chaparral. Rocky sites including scree and talus. 790-2120 m.
<i>Eriophorum gracile</i> slender cottongrass	None/None G5 / S4 4.3	Bogs and fens, meadows and seeps, upper montane coniferous forest. Acidic soils. 1280-2900 m.

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<i>Erythranthe glaucescens</i> shield-bracted monkeyflower	None/None G3 / S3 4.3	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Wet places, often in rock crevices, and in serpentine seeps. 60-1240 m.
<i>Erythranthe inflatula</i> ephemeral monkeyflower	None/None G3 / S2 1B.2	Great Basin scrub, lower montane coniferous forest, pinyon and juniper woodland. Gravelly or rocky sites; vernal mesic. 1245-1770 m.
<i>Erythranthe taylorii</i> Shasta limestone monkeyflower	None/None G2 / S2 1B.1	Cismontane woodland, lower montane coniferous forest. Openings, carbonate crevices and rocky outcrops. 325-1040 m.
<i>Erythronium citrinum</i> var. <i>roderickii</i> Scott Mountains fawn lily	None/None G4T3 / S3 1B.3	Lower montane coniferous forest. Serpentine; rocky sites. 545-1435 m.
<i>Erythronium klamathense</i> Klamath fawn lily	None/None G4 / S2 2B.2	Upper montane coniferous forest, meadows and seeps. 1200-1850 m.
<i>Erythronium shastense</i> Shasta fawn lily	None/None G2 / S2 1B.2	Cismontane woodland, lower montane coniferous forest. Usually carbonate, rocky, north-facing or shaded slopes. 345-1020 m.
<i>Fritillaria eastwoodiae</i> Butte County fritillary	None/None G3Q / S3 3.2	Chaparral, cismontane woodland, lower montane coniferous forest. Usually on dry slopes but also found in wet places; soils can be serpentine, red clay, or sandy 4550-1475 m.

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<i>Fritillaria glauca</i> Siskiyou fritillaria	None/None G3G4 / S3 4.2	Upper montane coniferous forest, alpine boulder and rock field, subalpine coniferous forest. Serpentine; talus slopes. 1735-2440 m.
<i>Galium serpenticum ssp. scotticum</i> Scott Mountain bedstraw	None/None G4G5T2 / S2 1B.2	Lower montane coniferous forest. Generally on north-facing slopes on serpentine in mixed conifer forest. 950-2225 m.
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	None/Endangered G2 / S2 1B.2	Marshes and swamps (freshwater), vernal pools. Clay soils; usually in vernal pools, sometimes on lake margins. 4-2410 m.
<i>Hackelia cusickii</i> Cusick's stickseed	None/None G4 / S3 4.3	Subalpine coniferous forest, pinyon and juniper woodland, alpine boulder and rock field. In shelter of junipers; rocky loam soil. 1200-2000 m.
<i>Haplodontium tehamense</i> Lassen Peak copper moss	None/None G2 / S2 1B.3	Alpine boulder and rock field. Moss on volcanic Breccia rock walls; mesic sites. 2500-2800 m.
<i>Harmonia doris-nilesiae</i> Niles' harmonia	None/None G2G3 / S2S3 1B.1	Lower montane coniferous forest, chaparral, cismontane woodland. Serpentine barrens. 650-1660 m.
<i>Harmonia stebbinsii</i> Stebbins' harmonia	None/None G2 / S2 1B.2	Chaparral, lower montane coniferous forest. Serpentine soils; often along roads. 120-1585 m.

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<i>Helianthus exilis</i> serpentine sunflower	None/None G3Q / S3 4.2	Chaparral, cismontane woodland. Serpentine seeps. 150-1525 m.
<i>Hesperocyparis bakeri</i> Baker cypress	None/None G4 / S4 4.2	Lower montane coniferous forest, chaparral. Mixed-evergreen forests, open slopes, flats, on serpentine or volcanic substrates. 820-1995 m.
<i>Heteranthera dubia</i> water star-grass	None/None G5 / S2 2B.2	Marshes and swamps. Alkaline, still or slow-moving water. Requires a pH of 7 or higher, usually in slightly eutrophic waters. 15-1510 m.
<i>Horkelia daucifolia</i> var. <i>indicta</i> Jepson's horkelia	None/None G4T1 / S1 1B.1	Cismontane woodland. Quaternary pyroclastic flows, volcanic or clay soils. Vernally mesic, openings. 240-670 m.
<i>Howellanthus dalesianus</i> Scott Mountain howellanthus	None/None G3 / S3 4.3	Lower montane coniferous forest, meadows, upper montane coniferous forest, subalpine coniferous forest, meadows and seeps. Dry meadows or openings in coniferous forest community on serpentine soil. 1025-2105 m.
<i>Hulsea nana</i> little hulsea	None/None G4 / S3 2B.3	Alpine boulder and rock field, subalpine coniferous forest. Rocky or gravelly sites; on volcanic substrates. 1705-3170 m.
<i>Iliamna bakeri</i> Baker's globe mallow	None/None G4 / S3 4.2	Chaparral, Great Basin scrub, pinyon juniper woodland, lower montane coniferous forest. Rocky loam or volcanic soils. 1000-2500 m.

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<i>Ivesia longibracteata</i> Castle Crag ivesia	None/None G1 / S1 1B.3	Lower montane coniferous forest. Crevices in granitic cliffs. About 1200-1400 m.
<i>Juncus digitatus</i> finger rush	None/None G1 / S1 1B.1	Cismontane woodland (openings), lower montane coniferous forest (openings), vernal pools. In full sun, in the vernally damp ground of seeps, vernal pools and swales on gentle slopes over volcanic bedrock. 600-790 m.
<i>Juncus hemiendytus</i> var. <i>abjectus</i> Center Basin rush	None/None G5T5 / S4 4.3	Subalpine coniferous forest, meadows and seeps. Mesic sites. 1400-3400 m.
<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	None/None G2T2 / S2 1B.1	Chaparral, valley and foothill grassland, cismontane woodland, vernal pools, meadows and seeps. Vernally mesic sites. Sometimes on edges of vernal pools. 30-1025 m.
<i>Juncus luciensis</i> Santa Lucia dwarf rush	None/None G3 / S3 1B.2	Vernal pools, meadows and seeps, lower montane coniferous forest, chaparral, Great Basin scrub. Vernal pools, ephemeral drainages, wet meadow habitats and streamsides. 300-2040 m.
<i>Lathyrus sulphureus</i> var. <i>argillaceus</i> dubious pea	None/None G5T1T2 / S1S2 3	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest. 150-930 m.
<i>Legenere limosa</i> legenere	None/None G2 / S2 1B.1	Vernal pools. In beds of vernal pools. 1-880 m.

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<i>Leptosiphon latisectus</i> broad-lobed leptosiphon	None/None G4 / S4 4.3	Broad-leafed upland forest, cismontane woodland. 170-1500 m.
<i>Lewisia cantelovii</i> Cantelow's lewisia	None/None G3 / S3 1B.2	Broad-leafed upland forest, lower montane coniferous forest, cismontane woodland, chaparral. Mesic rock outcrops and wet cliffs, usually in moss or clubmoss; on granitics or sometimes on serpentine. 330-1370 m.
<i>Lewisia cotyledon</i> var. <i>heckneri</i> Heckner's lewisia	None/None G4T3 / S3 1B.2	Lower montane coniferous forest. Rocky places. 225-2100 m.
<i>Lewisia cotyledon</i> var. <i>howellii</i> Howell's lewisia	None/None G4T4Q / S2 3.2	Chaparral, cismontane woodland, lower montane coniferous forest, broad-leafed upland forest. Rocky sites; bare shale outcrops in shallow soils. 150-2010 m.
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i> Hutchison's lewisia	None/None G3G4T3Q / S3 3.2	Upper montane coniferous forest. On slate; in openings. Sometimes on rhyolite tuff. 765-2365 m.
<i>Lewisia kelloggii</i> ssp. <i>kelloggii</i> Kellogg's lewisia	None/None G3G4T2T3Q / S2S3 3.2	Upper montane coniferous forest. Often on slate, sometimes rhyolite tuff. In openings, on ridgetops. 1465-2365 m.
<i>Lilium rubescens</i> redwood lily	None/None G3 / S3 4.2	Chaparral, lower montane coniferous forest, broad-leafed upland forest, upper montane coniferous forest, north coast coniferous forest. Sometimes on serpentine. 30-1910 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Limnanthes floccosa</i> ssp. <i>bellingermaniana</i> Bellinger's meadowfoam	None/None G4T2T3 / S1 1B.2	Meadows and seeps, cismontane woodland. Vernal wet sites including wet edges of meadows, and damp, stony flats. 300-1100 m.
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i> woolly meadowfoam	None/None G4T4 / S3 4.2	Chaparral, cismontane woodland, valley and foothill grassland, vernal pools. Vernal wet areas, ditches, and ponds. 60-1335 m.
<i>Lomatium tracyi</i> Tracy's lomatium	None/None G4 / S4 4.3	Lower montane coniferous forest, upper montane coniferous forest. On serpentine soils. Often on slopes, in Jeffrey pine woodland. 455-1950 m.
<i>Lupinus croceus</i> var. <i>pilosellus</i> saffron-flowered lupine	None/None G3T3 / S3 4.3	Lower montane coniferous forest. Slopes and hillsides. 835-1700 m.
<i>Lycopus uniflorus</i> northern bugleweed	None/None G5 / S4 4.3	Bogs and fens, marshes and swamps. Wet places. 5-2000 m.
<i>Lysimachia thyrsiflora</i> tufted loosestrife	None/None G5 / S1? 2B.3	Meadows and seeps, marshes and swamps, upper montane coniferous forest. Mesic sites; known from lake margins, along streams and in wet meadows. 975-1675 m.
<i>Mesia triquetra</i> three-ranked hump moss	None/None G5 / S4 4.2	Bogs and fens, meadows and seeps, upper montane coniferous forest, subalpine coniferous forest. Moss growing on mesic soil. Saturated bogs, fens, seeps and meadows in coniferous to subalpine forests. 1300-2955 m.

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<i>Meesia uliginosa</i> broad-nerved hump moss	None/None G5 / S3 2B.2	Meadows and seeps, bogs and fens, upper montane coniferous forest, subalpine coniferous forest. Moss on damp soil. Often found on the edge of fens or raised above the fen on hummocks/shrub bases. 1095-2805 m.
<i>Mertensia longiflora</i> long bluebells	None/None G4? / S2 2B.2	Great Basin scrub, lower montane coniferous forest. 1325-1830 m.
<i>Muhlenbergia jonesii</i> Jones' muhly	None/None G3 / S3 4.3	Lower montane coniferous forest, upper montane coniferous forest. 1130-2160 m.
<i>Navarretia heterandra</i> Tehama navarretia	None/None G4 / S4 4.3	Vernal pools, valley and foothill grassland. Mesic sites in grassland or vernal pools. 30-1010 m.
<i>Navarretia subuligera</i> awl-leaved navarretia	None/None G4 / S4 4.3	Cismontane woodland, lower montane coniferous forest, chaparral. Rocky plains and slopes; mesic sites. 150-1100 m.
<i>Nemophila breviflora</i> Great Basin nemophila	None/None G4G5 / S3 2B.3	Great Basin scrub, meadows and seeps, upper montane coniferous forest. Mesic sites. 880-2430 m.
<i>Neviusia cliftonii</i> Shasta snow-wreath	None/None G2 / S2 1B.2	Cismontane woodland, lower montane coniferous forest, riparian woodland. Shaded, north-facing, or sheltered canyons. Sometimes on limestone. Mesic areas. 330-540 m.

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<i>Orcuttia tenuis</i> slender Orcutt grass	Threatened/Endangered G2 / S2 1B.1	Vernal pools. Often in gravelly substrate. 25-1755 m.
<i>Packera indecora</i> rayless mountain ragwort	None/None G5 / S2? 2B.2	Meadows and seeps. Mesic sites. 1705- 3050 m.
<i>Panicum acuminatum</i> var. <i>thermale</i> Geysers panicum	None/Endangered G5T2Q / S2 1B.2	Closed-cone coniferous forest, riparian forest, valley and foothill grassland. Usually around moist, warm soil in the vicinity of hot springs. 455-2470 m.
<i>Parnassia cirrata</i> var. <i>cirrata</i> San Bernardino grass-of-Parnassus	None/None G5T2 / S2 1B.3	Lower montane coniferous forest, upper montane coniferous forest, meadows and seeps. Mesic sites, streamsides, sometimes calcareous. 1245-2440 m.
<i>Parnassia cirrata</i> var. <i>intermedia</i> Cascade grass-of-Parnassus	None/None G5T4 / S3 2B.2	Meadows and seeps, bogs and fens. Rocky serpentine soil. 775-2000 m.
<i>Paronychia ahartii</i> Ahart's paronychia	None/None G3 / S3 1B.1	Valley and foothill grassland, vernal pools, cismontane woodland. Stony, nearly barren clay of swales and higher ground around vernal pools. 30-510 m.
<i>Penstemon cinicola</i> ashy-gray beardtongue	None/None G4 / S3 4.3	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Volcanic sands, forest edges, and pumice meadows and slopes. 730-2685 m.

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<i>Penstemon filiformis</i> thread-leaved beardtongue	None/None G3 / S3 1B.3	Cismontane woodland, lower montane coniferous forest. Dry stony sites, grassy openings, & meadows, often along trails & logging roads; sometimes on serpentine. 180-2135 m.
<i>Penstemon heterodoxus</i> var. <i>shastensis</i> Shasta beardtongue	None/None G5T3 / S3 4.3	Lower montane coniferous forest, upper montane coniferous forest, broad-leafed upland forest, chaparral, meadows and seeps. Gravelly volcanic substrates, sandy granite, moist grassy meadows. 1100-2400 m.
<i>Phlox muscoides</i> squarestem phlox	None/None G4G5 / S3 2B.3	Alpine boulder and rock field, subalpine coniferous forest, Great Basin scrub. Open rocky slopes. 1280-2700 m.
<i>Picea engelmannii</i> Engelmann spruce	None/None G5 / S2 2B.2	Upper montane coniferous forest. Slopes and hillsides, often on alluvial terrace. 1065-2135 m.
<i>Piperia colemanii</i> Coleman's rein orchid	None/None G4 / S4 4.3	Chaparral, lower montane coniferous forest. Often in sandy soils. 1200-2300 m.
<i>Piperia leptopetala</i> narrow-petaled rein orchid	None/None G4 / S4 4.3	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest. 380-2225 m.
<i>Poa sierrae</i> Sierra blue grass	None/None G3 / S3 1B.3	Lower montane coniferous forest. Shady, moist, rocky slopes. Often in canyons. 365-1500 m.

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<i>Pogogyne floribunda</i> profuse-flowered pogogyne	None/None G3G4 / S3 4.2	Vernal pools. Heavy clay soil; surrounding community often pine/juniper or sagebrush scrub. 945-1745 m.
<i>Polemonium pulcherrimum</i> var. <i>shastense</i> Mt. Shasta sky pilot	None/None G5T2 / S2 1B.2	Alpine boulder and rock fields, subalpine coniferous forest, upper montane coniferous forest. Sometimes volcanic. 2175-3900 m.
<i>Polygonum bidwelliae</i> Bidwell's knotweed	None/None G4 / S4 4.3	Chaparral, cismontane woodland, valley and foothill grassland. Bare open areas on flats and volcanic outcrops; often in clay soils. 60-1200 m.
<i>Polygonum polygaloides</i> ssp. <i>esotericum</i> Modoc County knotweed	None/None G4G5T3 / S3 1B.1	Great Basin scrub, vernal pools, lower montane coniferous forest, meadows and seeps. Edges of seasonal lakes and ponds with <i>Deschampsia</i> , <i>Navarretia</i> , etc. 880-2225 m.
<i>Polystichum kruckebergii</i> Kruckeberg's sword fern	None/None G4 / S4 4.3	Upper montane coniferous forest, subalpine coniferous forest. Rocky cliffs and crevices. 2100-3200 m.
<i>Polystichum lonchitis</i> northern holly fern	None/None G5 / S3 3	Subalpine coniferous forest, upper montane coniferous forest. Moist shady crevices in granite or carbonate cliffs. 1800-2600 m.
<i>Potamogeton epihydrus</i> Nuttall's ribbon-leaved pondweed	None/None G5 / S2S3 2B.2	Marshes and swamps. Shallow water, ponds, lakes, streams, irrigation ditches. 295-2640 m.

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<i>Potamogeton praelongus</i> white-stemmed pondweed	None/None G5 / S2 2B.3	Marshes and swamps. Deep water, lakes. 1800-3000 m.
<i>Potamogeton zosteriformis</i> eel-grass pondweed	None/None G5 / S3 2B.2	Marshes and swamps. Ponds, lakes, streams. 90-2135 m.
<i>Potentilla newberryi</i> Newberry's cinquefoil	None/None G3G4 / S2S3 2B.3	Marshes and swamps, vernal pools. Receding shorelines; drying wetland margins. 1285-1930 m.
<i>Ptilidium californicum</i> Pacific fuzzwort	None/None G4G5 / S3S4 4.3	Lower montane coniferous forest, upper montane coniferous forest. Epiphytic on fallen and decaying logs and stumps. Rarely on boulders over humus. 340-1860 m.
<i>Puccinellia howellii</i> Howell's alkali grass	None/None G1 / S1 1B.1	Meadows and seeps. Mineralized soils around mineral springs and seeps. One site known: 485 m.
<i>Ribes roezlii</i> var. <i>amictum</i> hoary gooseberry	None/None G5T4 / S4 4.3	Broad-leaved upland forest, cismontane woodland, lower montane coniferous forest, upper montane coniferous forest. 120-2300 m.
<i>Sabulina rosei</i> peanut sandwort	None/None G3 / S3 4.2	Lower montane coniferous forest. Gravelly serpentine slopes, sometimes with ponderosa pine, Jeffrey pine. 750-1525 m.

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<i>Sagittaria sanfordii</i> Sanford's arrowhead	None/None G3 / S3 1B.2	Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and ditches. 0-605 m.
<i>Schoenoplectus subterminalis</i> water bulrush	None/None G4G5 / S3 2B.3	Marshes and swamps, bogs and fens. Montane lake margins, in shallow water. 750-2250 m.
<i>Scutellaria galericulata</i> marsh skullcap	None/None G5 / S2 2B.2	Marshes and swamps, lower montane coniferous forest, meadows and seeps. Swamps and wet places. 0-1950 m.
<i>Sedum laxum ssp. flavidum</i> pale yellow stonecrop	None/None G5T4Q / S4 4.3	Broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, upper montane coniferous forest. Serpentine or basalt outcrops. 455-2000 m.
<i>Sedum obtusatum ssp. paradisum</i> Canyon Creek stonecrop	None/None G4G5T3 / S3 1B.3	Chaparral, lower montane coniferous forest, subalpine coniferous forest, broad-leafed upland forest. Rock faces, in crevices of exposed granite. 850-1890 m.
<i>Sidalcea celata</i> Redding checkerbloom	None/None G2G3 / S2S3 3	Cismontane woodland. Sometimes on serpentine. 135-1525 m.
<i>Sidalcea gigantea</i> giant checkerbloom	None/None G3 / S3 4.3	Lower montane coniferous forest, upper montane coniferous forest, meadows and seeps. Moist areas, such as in meadows or at the edges of wet meadows, along creeks, or at seeps and springs. 670-1950 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Silene campanulata</i> ssp. <i>campanulata</i> Red Mountain catchfly	None/Endangered G5T3Q / S3 4.2	Lower montane coniferous forest, chaparral. Rocky dry shallow serpentine soil. 425-1235 m.
<i>Silene occidentalis</i> ssp. <i>longistipitata</i> long-stiped campion	None/None G4T2Q / S2 1B.2	Chaparral, lower montane coniferous forest, upper montane coniferous forest. 1000-2000 m.
<i>Silene occidentalis</i> ssp. <i>occidentalis</i> western campion	None/None G4T3 / S3 4.3	Lower montane coniferous forest, upper montane coniferous forest, chaparral. Open, dry sites. 1230-2090 m.
<i>Silene oregana</i> Oregon campion	None/None G4 / S2 2B.2	Great Basin scrub, subalpine coniferous forest. 1675-2930 m.
<i>Silene salmonacea</i> Klamath Mountain catchfly	None/None G3 / S3 1B.2	Lower montane coniferous forest. Openings, usually serpentine. 775-1345 m.
<i>Silene suksdorfii</i> Cascade alpine campion	None/None G4 / S3 2B.3	Alpine boulder and rock field, subalpine coniferous forest, upper montane coniferous forest. Rocky, volcanic soils. 1745-3050 m.
<i>Smelowskia ovalis</i> alpine smelowskia	None/None G5 / S1 1B.2	Alpine boulder and rock field. Steep loose talus slopes. 2590-3050 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Smilax jamesii</i> English Peak greenbrier	None/None G3G4 / S3S4 4.2	North coast coniferous forest, broad-leaved upland forest, lower montane coniferous forest, upper montane coniferous forest, marshes and swamps. Along streams and lake margins, sometimes mesic depressions. 505-1975 m.
<i>Sparganium natans</i> small bur-reed	None/None G5 / S3S4 4.3	Marshes and swamps, bogs and fens. Lake and pond margins. 1645-2500 m.
<i>Stachys pilosa</i> hairy marsh hedge-nettle	None/None G5 / S3 2B.3	Great Basin scrub, meadows and seeps. Mesic sites. 785-2045 m.
<i>Stellaria longifolia</i> long-leaved starwort	None/None G5 / S2 2B.2	Bogs and fens, meadows and seeps, riparian woodland, upper montane coniferous forest. Moist areas. 900-1830 m.
<i>Stellaria obtusa</i> obtuse starwort	None/None G5 / S4 4.3	Upper montane coniferous forest, lower montane coniferous forest, riparian woodland. Streams or seeps in conifer forest. 150-2135 m.
<i>Streptanthus drepanoides</i> sickle-fruit jewelflower	None/None G4 / S4 4.3	Chaparral, lower montane coniferous forest, cismontane woodland. Open serpentine slopes and roadcuts. 275-1660 m.
<i>Streptanthus longisiliquus</i> long-fruit jewelflower	None/None G3 / S3 4.3	Lower montane coniferous forest, cismontane woodland. Openings. 715-1500 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Stuckenia filiformis</i> ssp. <i>alpina</i> slender-leaved pondweed	None/None G5T5 / S3 2B.2	Marshes and swamps. Shallow, clear water of lakes and drainage channels. 300-2150 m.
<i>Subularia aquatica</i> ssp. <i>americana</i> water awlwort	None/None G5T5 / S4 4.3	Upper montane coniferous forest. Lake margins, wet sites. 1900-3100 m.
<i>Thelypodium brachycarpum</i> short-podded thelypodium	None/None G3 / S3 4.2	Chaparral, lower montane coniferous forest, meadows and seeps. Serpentine gravel and alkaline soils. In Oregon, on the alluvial clays of river plains and lake basins. 670-2560 m.
<i>Thelypodium howellii</i> ssp. <i>howellii</i> Howell's thelypodium	None/None G2T2 / S1 1B.2	Great Basin scrub, meadows and seeps. Moist alkaline meadows. 1005-2045 m.
<i>Thermopsis californica</i> var. <i>argentata</i> silvery false lupine	None/None G4T4 / S4 4.3	Lower montane coniferous forest, pinyon-juniper woodland. 665-1595 m.
<i>Thermopsis gracilis</i> slender false lupine	None/None G4 / S4 4.3	Meadows and seeps, lower montane coniferous forest, north coast coniferous forest, chaparral, cismontane woodland. 100-1720 m.
<i>Trichodon cylindricus</i> cylindrical trichodon	None/None G4 / S2 2B.2	Broad-leaved upland forest, upper montane coniferous forest. Moss growing in openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 50-1500 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Trifolium andersonii</i> ssp. <i>andersonii</i> Anderson's clover	None/None G5T5 / S4 4.3	Great Basin scrub, lower montane coniferous forest, meadows and seeps, pinyon-juniper woodland. 900-2440 m.
<i>Trifolium siskiyouense</i> Siskiyou clover	None/None GH / SH 1B.1	Meadows and seeps. Mesic sites. 880-1500 m.
<i>Trillium ovatum</i> ssp. <i>oettingeri</i> Salmon Mountains wakerobin	None/None G5T3 / S3 4.2	Lower montane coniferous forest, upper montane coniferous forest, riparian scrub. Moist shady spots along streams and near seeps, often in heavily forested areas. 855-2025 m.
<i>Triteleia crocea</i> var. <i>crocea</i> yellow triteleia	None/None G4T4 / S3S4 4.3	Lower montane coniferous forest. Decomposed granite and serpentine soils. 1200-2000 m.
<i>Triteleia crocea</i> var. <i>modesta</i> Trinity Mountains triteleia	None/None G4T3 / S3 4.3	Lower montane coniferous forest. Dry slopes; serpentine soils. 1200-2000 m.
<i>Tuctoria greenei</i> Greene's tuctoria	Endangered/Rare G1 / S1 1B.1	Vernal pools. Vernal pools in open grasslands. 25-1325 m.
<i>Utricularia minor</i> lesser bladderwort	None/None G5 / S3 4.2	Bogs and fens, shallow freshwater marshes. Calcium-rich water. 800-2900 m.

Scientific Name Common Name	Status Fed/State ESA G-Rank/S-Rank CDFW	Habitat Requirements
<i>Vaccinium shastense</i> ssp. <i>shastense</i> Shasta huckleberry	None/None G4T3 / S3 1B.3	Chaparral, cismontane woodland, lower montane coniferous forest, riparian forest, subalpine coniferous forest. Acidic, mesic. Often on streambanks; sometimes on rocky outcrops, seeps, roadsides, and disturbed areas. 325-1220 m.
<i>Veratrum insolitum</i> Siskiyou false-hellebore	None/None G4 / S4 4.3	Lower montane coniferous forest, chaparral. Ridgetops, streamsides, and hillsides; often on serpentine, clay soils. 45-1635 m.
<i>Viburnum ellipticum</i> oval-leaved viburnum	None/None G4G5 / S3? 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 215-1400 m.
<i>Viola palustris</i> alpine marsh violet	None/None G5 / S1S2 2B.2	Coastal scrub, bogs and fens. Swampy, shrubby places in coastal scrub or coastal bogs. 0-150 m.

FE = Federally Endangered FT = Federally Threatened

SE = State Endangered ST = State Threatened SR = State Rare

G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDDB RareFind3.

CRPR (CNPS California Rare Plant Rank):

1A=Presumed Extinct in California

1B=Rare, Threatened, or Endangered in California and elsewhere

2A=Plants presumed extirpated in California, but more common elsewhere

2B=Plants Rare, Threatened, or Endangered in California, but more common elsewhere

3=Need more information (a Review List)

4=Plants of Limited Distribution (a Watch List)

CRPR Threat Code Extension:

.1=Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2=Fairly endangered in California (20-80% occurrences threatened)

.3=Not very endangered in California (<20% of occurrences threatened)

Sensitive Communities and Critical Habitats Documented within Shasta County

Communities Considered Sensitive by the CDFW

Alkali Seep

Darlingtonia Seep

Great Valley Cottonwood Riparian Forest

Great Valley Mixed Riparian Forest

Great Valley Valley Oak Riparian Forest

Great Valley Willow Scrub

Northern Basalt Flow Vernal Pool

Northern Interior Cypress Forest

Critical Habitat

Northern spotted owl (*Strix occidentalis caurina*)

Central Valley spring-run Chinook (*Oncorhynchus tshawytscha*)

Central Valley winter-run Chinook (*Oncorhynchus tshawytscha*)

Central Valley steelhead (*Oncorhynchus mykiss*)

Vernal pool fairy shrimp (*Branchinecta lynchi*)

Vernal pool tadpole shrimp (*Lepidurus packardii*)

Slender Orcutt grass (*Orcuttia tenuis*)

Greene's tuctoria (*Tuctoria greenei*)

Sources: CNDDDB (CDFW, 2017); USFWS, Critical Habitat Portal (2017)