2024 Regional Transportation Plan/ Sustainable Communities Strategy

Draft Supplemental Environmental Impact Report

prepared by

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September 2024

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Background

This SEIR augments the previously certified Supplemental Environmental Impact Report (SEIR) for the 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (State Clearinghouse No. 2015092038). The 2020 SEIR updated the previous 2016 Environmental Impact Report (EIR) certified by Butte County Association of Governments (BCAG) Board of Directors on December 8, 2016. For purposes of this SEIR, the previously certified EIR is referred to herein as the 2016 EIR. The Butte County Association of Governments (BCAG) Board of Directors certified the 2020 SEIR on December 14, 2020. For purposes of this SEIR, the previously certified EIR is referred to herein as the 2020 SEIR. The impacts of the current 2020 RTP/SCS were analyzed in the previously certified 2020 SEIR, which was a Program SEIR. The proposed 2024 RTP/SCS is an update of the current 2020 RTP/SCS. The analysis in this SEIR is also programmatic and is focused on the potential changes in environmental effects that could result from the updates to the 2020 RTP/SCS that are included in the proposed 2024 RTP/SCS, including updates or changes to policies, projects, and growth scenarios. Therefore, this SEIR is being prepared to analyze only the changes to the 2020 RTP/SCS or changes in circumstances under which the RTP/SCS projects would be implemented since certification of the 2020 SEIR.

Project Description

The underlying purpose of BCAG's 2024 RTP/SCS, which updates the current 2020 RTP/SCS, is to coordinate and facilitate the programming and budgeting of all transportation facilities and services within Butte County through 2045 and demonstrate how the region will integrate transportation and land use planning to meet greenhouse gas reduction targets established by CARB under Senate Bill (SB) 375.

The 2024 RTP/SCS is also intended to show how BCAG will meet the transportation needs of the region through 2045, considering existing and projected future land use patterns, as well as forecasted population and job growth. The 2024 RTP/SCS plans for and programs approximately $1,471,599 in revenues expected to be available to BCAG 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, bicycle and pedestrian; aviation, as well as transportation demand management (TDM) and transportation system management (TSM).

The primary objective of updating the RTP/SCS is to comply with applicable regulatory requirements, including changes in legislative requirements that have occurred since the current 2020 RTP/SCS was adopted on December 14, 2020. The 2024 update is focused on continued implementation of the 2020 RTP/SCS, with minor updates to ensure consistency with federal, state and local planning requirements. The 2024 RTP/SCS transportation improvements project list will update the 2020 RTP/SCS project list by removing projects that have been completed since 2020, modifying some projects that continue to be on the list based on new information, and adding approximately new minor projects to the list. None of the modified or new projects on the 2024 RTP/SCS list would be substantially different in terms of geographical location, type of project, or size of project to those on the 2020 RTP/SCS list.

In addition, the land use scenario envisioned by the 2024 RTP/SCS is consistent to that contained in the 2020 RTP/SCS, concentrating forecasted growth in population and employment in the region in urban areas and corridors of the County while preserving the distinct identity of existing cities and towns.

Alternatives

This SEIR examines three alternatives to the proposed 2024 RTP/SCS:

Alternative 1, No Project Alternative, includes a land use pattern a land use pattern comprised of land use trends according to the 2020 RTP/SCS. In other words, it assumes that current regional growth trends would continue consistent with what was estimated in the 2020 RTP/SCS, as population growth in the region would occur regardless of the 2024 RTP/SCS. Transportation projects would be comprised of those that are currently in construction or are funded through the 2020 RTP/SCS updated to reflect current conditions. No new transportation improvement projects would be added to the 2020 RTP list and therefore would not occur.

Alternative 2, Financially Unconstrained Alternative, includes the SCS and all projects identified in the 2024 project list, including those classified as financially “unconstrained”, without regard to whether or not they can be funded. Transportation benefits under Alternative 2 relative to the 2024 RTP/SCS would be greater because of the increased volume of both roadway improvement and transit projects.

Alternative 3, Transit Investment Plus (+), focuses investment into development of public transit systems and alternative transportation modes, emphasizing bus, pedestrian, and bicycle modes of transportation. Secondly, this alternative would invest in measures such as solar panels, a plug-in efficiency (PEV) vehicle fleet, and natural gas and electric buses to further reduce project environmental effects through energy efficiency. Thirdly, this alternative would result in changes to price metrics such as fuel and transit pricing. Under this scenario all transportation improvement projects as proposed under the 2024 RTP/SCS would remain (as all of the projects are constrained or funded); however, in addition there would be an increased amount of public transit, alternative transportation, and energy efficient transportation projects implemented. An increased amount of transit projects under this alternative would result in an increased amount of associated development of those facilities relative to the 2024 RTP/SCS but a reduction of VMT in the region.
Areas of Known Controversy

Areas of controversy associated with the proposed 2024 RTP/SCS are made known through comments received during the Notice of Preparation (NOP) process, as well as input solicited during public scoping meetings and an understanding of the community issues in the region. The SEIR scoping process and comments received in response to the NOP did not identify areas of known controversy for the proposed 2024 RTP/SCS. Public comments received during the NOP scoping period are summarized in Section 1.0, *Introduction*.

Issues to be Resolved

Section 15123(b)(3) of the *CEQA Guidelines* requires that an EIR contain a discussion of issues to be resolved including the choice among the project and alternatives, and whether or how to mitigate significant effects. Issues to be resolved include:

- How to address impacts from the SCS land use scenario that must be mitigated by the local land use authority, given that BCAG does not have jurisdiction over land use regulations.
- How best to require mitigation measures that can be enacted by implementing agencies in a manner to ensure CEQA streamlining for qualifying projects, per SB 375 and other laws, can occur.
- Whether to approve the proposed 2024 RTP/SCS or an alternative.

Summary of Impacts and Mitigation Measures

Table ES-1 summarizes the environmental impacts, proposed mitigation measures, and level of significance after application of mitigation, as applicable, of the 2024 RTP/SCS for issue areas evaluated in the SEIR. Impacts are categorized as follows:

- **Significant and Unavoidable.** An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per Section 15093 of the *CEQA Guidelines*.
- **Less than Significant with Mitigation Incorporated.** An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under Section 15091 of the *CEQA Guidelines*.
- **Less than Significant.** An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
- **No Impact:** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Issues that were found to have potentially significant impacts that were either not evaluated in the 2020 SEIR or would potentially change in severity beyond what was identified in the 2020 EIR and therefore required additional analysis in this SEIR include agriculture resources, air quality, biological resources, cultural resources, energy, greenhouse gas emissions, noise, population and housing, transportation, tribal cultural resources, and wildfire. Table ES-1 summarizes the impacts related to these issues as well as applicable mitigation measures to reduce impacts, as identified in this SEIR. Mitigation measures from the 2020 SEIR that are discussed in Section 4.12, *Other Environmental Issues Areas Analyzed*, are also included in Table ES-1.

Table ES-1 Summary of Environmental Impacts

Impact	Mitigation Measure (s)	Significance After Mitigation
Aesthetics		
Other Environmental Issue Areas Analyzed. Section 4.11.1 Aesthetics	**AES-1(a)** Where a particular 2024 RTP/SCS 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-2(a)** 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-2(b)** 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 feature 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-3.** 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.	Less than significant with mitigation
Agriculture and Forestry		
Impact AG-1. Implementation of proposed transportation improvements under the 2024 RTP/SCS could result in the additional conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and lands under Williamson Act contract to non-agricultural uses, relative to the 2020 RTP/SCS. Impacts would remain significant and unavoidable.	**AG-1(a) Alternative Alignment Consideration.** When new roadway extensions or widenings are planned, the project sponsor shall assure that project-specific environmental reviews consider alternative alignments that reduce or avoid impacts to Prime Farmlands. **AG-1(b) Farmer Compensation.** Rural roadway alignments shall follow property lines to the extent feasible, to minimize impacts to the agricultural production value of any specific property. Farmers shall be compensated for the loss of agricultural production at the margins of lost property,	Significant and unavoidable

Impact	Mitigation Measure (s)	Significance After Mitigation
	based on the amount of land deeded as road right-of-way, as a function of the total amount of production on the property. **AG-1(c) Important Farmland Conservation Easements.** When new transportation facilities or land use projects implementing the 2024 RTP/SCS are planned in areas that contain Important Farmland (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance), the transportation project sponsor or local jurisdiction in which the project is located shall assure that project-specific environmental reviews mitigate impacts, when feasible, through requiring use of agricultural conservation easements on land of at least equal quality and size as compensation for the loss of agricultural land. Agricultural conservation easements would be implemented by directly purchasing easements or donating mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements. **AG-1(d) Prime Farmland Conservation Easements.** Prior to approval of 2024 RTP/SCS projects that may adversely impact Prime Farmland, the project sponsor shall, when the following mitigation measures are feasible, require that a farmland conservation easement, a farmland deed restriction, or other farmland conservation mechanism be granted in perpetuity to the municipality in which the project is proposed, or an authorized agent thereof. The easement shall provide conservation acreage at a minimum ratio of 1:1 for direct impacts. The conservation area shall be located within Butte County in reasonable proximity to the project area.	
Air Quality		
Impact AQ-1. The 2024 RTP/SCS would reduce emissions of ozone precursors consistent with the goals of the 2021 Triennial AQAP. It would not conflict with the 2021 AQAP Update. There would be no new impact relative to the 2024 RTP/SCS. Impacts would remain less than significant.	None required.	Less than significant
Impact AQ-2. Construction of transportation improvement projects and the land use pattern envisioned by the 2024 RTP/SCS would generate short-term air pollutant emissions. Due to the inclusion of a larger number of projects, implementation of the 2024 RTP/SCS would potentially result in higher quantities of short-term air pollutant emissions than implementation	**AQ-1.** BCAG shall and sponsor agencies can and should ensure that all feasible and appropriate mitigation measures set by BCAQMD are implemented. The measures shall be noted on all construction plans, and the lead agency shall perform periodic site inspections. BCAQMD rules and regulations on construction include, but are not limited to, the following: ▪ Mix backfill soil with water prior to moving; ▪ Prevent generation of dust plumes by applying water in sufficient quantity; ▪ Limit vehicular traffic and disturbances on soils where possible;	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
of the 2020 RTP/SCS. Impacts would remain significant but mitigable.	▪ Grade each project phase separately, timed to coincide with construction phase; ▪ Use tarps or other suitable enclosures on haul trucks; ▪ Maintain effective cover over materials; ▪ Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes; ▪ Restrict vehicular access to established unpaved travel paths and limit number and size of staging area entrances and exits; ▪ Add or remove material from the downwind portion of the storage pile; ▪ Pre-water soils prior to trenching (18 inches for deep trenching activities); and ▪ Haul waste material immediately off-site.	
Impact AQ-3. The transportation improvement projects envisioned by the 2024 RTP/SCS may generate short-term and long-term emissions facilitating increased exposure of sensitive receptors to hazardous air pollutants that may cause health risks. However, implementation of the 2024 RTP/SCS would not result in a regional increase in toxic air emissions when compared to the baseline conditions and would have similar localized impacts as those described in the 2020 RTP/SCS EIR. Impacts would remain significant but mitigable.	**AQ-3[1]:** Consistent with the provisions contained in the CARB Air Quality and Land Use Handbook (June 2005), for the proposed building design for residential, school, and other sensitive use projects located within 500 feet of freeways, heavily travelled arterials, railways, and other sources of diesel particulate matter and other known carcinogens, the sponsor agency shall retain a qualified air quality consultant to prepare a health risk assessment in accordance with CARB and the Office of Environmental Health and Hazard Assessment requirements to determine the exposure of project residents/occupants/users to stationary air quality polluters prior to issuance of a demolition, grading, or building permit. The health risk assessment shall be submitted to the sponsor agency for review and approval. The sponsor agency shall implement any approved health risk assessment recommendations to a level that would not result in exposure of sensitive receptors to substantial pollutant concentrations. Such measures may include: ▪ Do not locate sensitive receptors near the entry and exit points of a distribution center. ▪ Do not locate sensitive receptors in the same building as a perchloroethylene dry cleaning facility. ▪ Maintain a 50-foot buffer from a typical gas dispensing facility (under 3.6 million gallons of gas per year). ▪ Install, operate, and maintain in good working order a central heating and ventilation system or other air take system in the building, or in each individual residential unit, that meets the efficiency standard of the minimum efficiency reporting value (MERV) 13. The heating and ventilation system should include the following features: Installation of a high efficiency filter and/or carbon filter-to-filter particulates and other chemical matter from entering the building. Either high efficiency particulate	Less than significant with mitigation

[1] Note that the 2020 RTP/SCS EIR did not include a Mitigation Measure AQ-2. Mitigation Measures AQ-1 and AQ-3 would both continue to apply to the 2024 RTP/SCS as analyzed in this SEIR.

Impact	Mitigation Measure (s)	Significance After Mitigation
	absorption filters or American Society of Heating, Refrigeration, and Air-Conditioning Engineers 85% supply filters should be used. ▪ Retain a qualified heating and ventilation consultant or high efficiency particulate absorption rate during the design phase of the project to locate the heating and ventilation system based on exposure modeling from the mobile and/or stationary pollutant sources. ▪ Maintain positive pressure within the building. ▪ Achieve a performance standard of at least one air exchange per hour of fresh outside filtered air. ▪ Achieve a performance standard of at least 4 air exchanges per hour of recirculation. ▪ Achieve a performance standard of 0.25 air exchanges per hour of unfiltered infiltration if the building is not positively pressurized.	
Impact AQ-4. Re-entrained dust from transportation sources has the potential to increase airborne particulate matter levels in the Plan Area. The 2024 RTP/SCS would decrease PM_{10} in Butte County relative to baseline conditions, which would contribute to lower levels of re-entrained dust from roadway activity. Impacts would remain less than significant.	None required.	Less than significant
Impact AQ-5. Implementation of the 2024 RTP/SCS would result in odors generated by development of new and modified projects in the 2024 RTP/SCS project list. However, the 2024 RTP/SCS would have similar odor impacts as those described in the 2020 RTP/SCS EIR. Impacts would be less than significant.	None required.	Less than significant
Biological Resources		
Impact BIO-1. Similar to the 2020 RTP/SCS, implementation of projects in the 2024 RTP/SCS have the potential to result in impacts to special status species and their habitats. Implementation of mitigation measures from the 2020 RTP/SCS SEIR would reduce impacts to less than significant.	**BIO-1. Special Status Species.** Prior to final design approval of individual projects, the implementing agency shall have a qualified biologist conduct a field reconnaissance of the environmental limits of the project in an effort to identify any biological constraints for the project, including special status plants, animals, and their habitats, as well as protected natural communities including wetland and terrestrial communities. If the biologist identifies protected biological resources within the limits of the project, the implementing agency shall first, prepare alternative designs that seek to avoid and/or minimize impacts to the biological resources. If the project cannot be designed without complete avoidance, the	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
	implementing agency shall coordinate with the appropriate regulatory agency (i.e. USFWS, NMFS, CDFG, USACE) to obtain regulatory permits and implement project-specific mitigation prior to any construction activities.	
Impact BIO-2. Similar to the 2020 RTP/SCS, implementation of projects in the 2024 RTP/SCS have the potential to result in impacts to riparian habitat or other sensitive natural communities. Implementation of mitigation measures from the 2020 RTP/SCS SEIR would reduce impacts to less than significant.	**BIO-2(a) Aquatic Environment Documentation.** Prior to approval of individual projects, the implementing agency shall retain a qualified biologist to perform an assessment of the project area to identify wetlands, riparian, and other sensitive aquatic environments. If wetlands are present the qualified biologist shall perform a wetland delineation following the 1987 Army Corps of Engineers Wetlands Delineation Manual and any applicable regional supplements to the Delineation Manual. The wetland delineation shall be submitted to the USACE for verification. **BIO-2(b) Aquatic Environment Avoidance and Minimization.** If wetlands, riparian, or other sensitive aquatic environments are found within the project limits, the implementing agency shall design or modify the project to avoid direct and indirect impacts on these habitats, if feasible. Additionally, the implementing agency shall minimize the loss of riparian vegetation by trimming rather than removal where feasible. Prior to construction, the implementing agency shall install orange construction barrier fencing to identify environmentally sensitive areas around the wetland (20' from edge), riparian area (100' from edge), and other aquatic habitats (250' from edge of vernal pool), or as defined by the agency with regulatory authority over the resource(s). The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications: The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the BCAG. The Contractor will take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors. Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 10-foot spacing. Immediately upon completion of construction activities the contractor shall stabilize exposed soil/slopes. On highly erodible soils/slopes, use a nonvegetative material that binds the soil initially and breaks down within a few years. If more aggressive erosion control treatments are needed, geotextile mats, excelsior blankets, or other soil	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
	stabilization products will be used. All stabilization efforts should include habitat restoration efforts. **BIO-2(c) Compensation for Loss of Aquatic Environments.** If wetlands or riparian habitat are disturbed as part of an individual project, the implementing agency shall compensate for the disturbance to ensure no net loss of habitat functions and values. Compensation ratios shall be based on site-specific information and determined through coordination with state, federal, and local agencies as part of the permitting process for the project. Unless determined otherwise by the regulatory/permitting agency, the compensation shall be at a minimum ratio of 3 acres restored, created, and/or preserved for every 1 acre disturbed. Compensation may comprise onsite restoration/creation, off-site restoration, preservation, or mitigation credits (or a combination of these elements). The implementing agency shall develop and implement a restoration and monitoring plan that describes how the habitat shall be created and monitored over a minimum period of time.	
Impact BIO-3. Similar to the 2020 RTP/SCS, implementation of projects in the 2024 RTP/SCS may interfere with wildlife movement. Implementation of mitigation measures from the 2016 RTP/SCS EIR would reduce impacts to less than significant.	**BIO-3 Wildlife Corridors.** Prior to design approval of individual projects that contain movement habitat, the implementing agency shall incorporate economically viable design measures, as applicable and necessary, to allow wildlife or fish to move through the transportation corridor, both during construction activities and post construction. Such measures may include appropriately spaced breaks in a center barrier, or other measures that are designed to allow wildlife to move through the transportation corridor. If the project cannot be designed with these design measures (i.e. due to traffic safety, etc.) the implementing agency shall coordinate with the appropriate regulatory agency (i.e. USFWS, NMFS, CDFW) to obtain regulatory permits and implement alternative project-specific mitigation prior to any construction activities.	Less than significant with mitigation
Impact BIO-4. Similar to the 2020 RTP/SCS, construction activities associated with implementation of proposed transportation improvements and the land use scenario envisioned in the 2024 RTP/SCS may result in the introduction and spread of noxious weeks. Mitigation from the 2020 RTP/SCS SEIR would reduce impacts to less than significant.	**BIO-4 Noxious Weed Survey.** Prior to approval of individual projects, the implementing agency shall retain a qualified biologist determine whether noxious weeds are an issue for the project. If the biologist determines that noxious weeds are an issue, the implementing agency shall review the noxious weed list from the County Agricultural Commission, California Department of Food and Agriculture, and the California Exotic Pest Plant Council to identify target weed species for a field survey. Noxious weed infestations shall be mapped and documented. The implementing agency shall incorporate the following measures into project plans and specifications: ▪ Certified, weed-free, imported erosion-control materials (or rice straw in upland areas) will be used. ▪ The project sponsor will coordinate with the county agricultural commissioner and land management agencies to ensure that the appropriate BMPs are implemented. ▪ Construction supervisors and managers will be educated about noxious weed identification and the importance of controlling and preventing their spread.	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
	▪ Equipment will be cleaned at designated wash stations after leaving noxious weed infestation areas.	
Impact BIO-5. The 2024 RTP/SCS would not conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. there would be no impact.	None required	No impact
Cultural and Paleontological Resources		
Impact CR-1. Implementation of proposed transportation improvements and the land use scenario envisioned by the 2024 RTP/SCS could cause a substantial adverse change in built environment cultural resources that are historical resources as defined in State CEQA Guidelines Section 15064.5. Impacts would be significant and unavoidable.	**CUL-1(a) Historical Resources Impact Minimization.** Prior to individual project permit issuance, the implementing agency of a 2024 RTP/SCS project involving demolition, earth disturbance, or construction of permanent above ground structures or roadways shall prepare a map defining the project site. This map shall indicate the areas of primary and secondary disturbance associated with construction and operation of the facility and will help in determining whether known historical resources are located within the impact zone. If a building or structure greater than 45 years in age is within the identified project site, a survey and evaluation of the structure(s) to determine their eligibility for recognition under State, federal, or local historic preservation criteria shall be conducted. The evaluation shall be prepared by an architectural historian, or historical architect meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualification Standards. The evaluation shall comply with State CEQA Guidelines section 15064.5(b). If historical resources are identified, study recommendations shall be implemented, which may include, but would not be limited to, the following: ▪ Realign or redesign projects to avoid impacts on known historical resources where possible ▪ If avoidance of a significant architectural/built environment resource is not feasible, additional mitigation options include, but are not limited to, specific design plans for historic districts, or plans for alteration or adaptive re-use of a historical resource that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitation, Restoring, and Reconstructing Historic Buildings ▪ If compliance with the Secretary of the Interior's Standards is not feasible and a historical resource will be demolished, the resource should be documented through a Historic American Building Survey (HABS)-like package. This shall include a narrative report of the report and digital photographs in a manner generally consistent with HABS guidelines. The package shall be physically produced using archival materials and offered to local historical repositories	Significant and Unavoidable

Impact	Mitigation Measure (s)	Significance After Mitigation
Impact CUL-2. Implementation of proposed transportation improvements and the land use scenario envisioned by the 2024 RTP/SCS could cause a substantial adverse change in archaeological resources pursuant to State CEQA Guidelines Section 15064.5. Impacts would be less than significant with mitigation incorporated.	**CUL-2(a) Archeological Resources Impact Minimization.** Prior to individual project permit issuance, the implementing agency of a 2024 RTP/SCS project involving demolition, earth disturbance, or construction of permanent above ground structures or roadways shall retain a qualified archaeologist meeting the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation, Professional Qualifications Standards, to prepare a Phase I archaeological resources survey of the project site. Implementing agencies shall follow recommendations identified in the survey, which may include, but would not be limited to: subsurface testing, designing and implementing a Worker Environmental Awareness Program (WEAP), construction monitoring by a qualified archaeologist, or avoidance of sites and preservation in place. Recommended mitigation measures will be consistent with State CEQA Guidelines Section 15126.4(b)(3) recommendations and may include but not be limited to preservation in place and/or data recovery. All cultural resources work shall follow accepted professional standards in recording any find including submittal of standard DPR Primary Record forms (Form DPR 523) and location information to the appropriate California Historical Resources Information System office for the project area. **CUL-2(b) Unanticipated Discoveries During Construction.** If evidence of any prehistoric or historic-era archaeological features or deposits are discovered during construction-related earthmoving activities (e.g., faunal remains, ceramic fragments, trash scatters, lithic scatters), implementing agencies shall halt all ground-disturbing activity proximate to the discovery until a qualified archaeologist (36 CFR Section 61) can assess the significance of the find. If the find is a prehistoric archaeological site, the culturally affiliated California Native American tribe shall be notified. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the archaeologist determines that further information is needed to evaluate significance, a testing plan shall be prepared and implemented. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist shall work with the implementing agency to avoid disturbance to the resources, and if complete avoidance is not feasible in light of project design, economics, logistics and other factors, shall recommend additional measures such as the preparation and implementation of a data recovery plan. Recommended mitigation measures will be consistent with State CEQA Guidelines Section 15126.4(b)(3) recommendations and may include but not be limited to preservation in place and/or data recovery. All cultural resources work shall follow accepted professional standards in recording any find including submittal of standard DPR Primary Record forms (Form DPR 523) and location information to the appropriate California Historical Resources Information System office for the project area. If the find	Less than significant after mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
	is a prehistoric archaeological site, the culturally affiliated California Native American tribe shall be notified and afforded the opportunity to monitor mitigative treatment. During evaluation or mitigative treatment, ground disturbance and construction work may continue in other parts of the project area that are distant enough from the find not to impact it, as determined by the qualified archaeologist.	
Impact CUL-3: Implementation of proposed transportation improvements and the land use scenario envisioned by the 2024 RTP/SCS could disturb unknown human remains during construction activity. Impacts to human remains would be less than significant with adherence to existing regulations.	None required	Less than significant
Impact CUL-4: Implementation of proposed transportation improvements and the land use scenario envisioned by the 2024 RTP/SCS could impact unknown paleontological resources, Impacts would be less than significant with mitigation incorporated.	**CUL-3(a) Paleontological Resources Study.** The project sponsor of a 2024 RTP/SCS project involving earth disturbance shall ensure that the following elements are included in the project's individual environmental review: 1. Prior to construction, a map defining the project site shall be prepared on a project-by-project basis for 2024 RTP/SCS improvements which involve ground disturbance. 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 paleontological resources are located within the project site. 2. A paleontological resources study of each project area, as defined in the project site, shall be completed by a Qualified Paleontologist, as defined by the Society of Vertebrate Paleontology's (SVP) *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (SVP 2010), to determine whether known paleontological resources or paleontologically sensitive geologic formations, which may contain unknown paleontological resources, occur within the project area. 3. If the results of the paleontological resources study determines that paleontological resources may be impacted by the project, additional mitigation measures may be recommended as explained below: **CR-3(b) Paleontological Resources Monitoring.** If the paleontological resources study determines that development of the proposed improvement requires paleontological monitoring, the project sponsor shall ensure that a paleontological monitor who meets the Society of Vertebrate Paleontology's definition of a Paleontological Resources Monitor is present to monitor all activities which may impact paleontological resources. The monitoring program shall be overseen by a Qualified Professional Paleontologist. 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	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
	placement of conditions on the project by the local jurisdiction during individual environmental review. **CR-3(c) Paleontological Resources Recovery**. If paleontological resources are discovered during a project, whether a paleontological monitor is present or not, a Qualified Professional Paleontologist shall determine whether the resource is scientifically significant and provide further management directions, if necessary. If the paleontological resources are scientifically significant, they shall be salvaged, prepared (i.e., cleaned and/or stabilized) in a paleontological laboratory, and curated at an institution with a permanent paleontological collection. This requirement can be accomplished through placement of conditions on the project by the local jurisdiction during individual environmental review.	
Impact CUL-5: Implementation of proposed transportation improvements and future projects included in the land use scenario envisioned in the 2024 RTP/SCS has the potential to impact tribal cultural resources. Impacts would be less than significant with mitigation incorporated.	**TCR-1(a) Identified Tribal Cultural Resources Impact Minimization.** Transportation project sponsor agencies shall comply with AB 52, which may require formal tribal consultation. If the implementing agency determines that a project may cause a substantial adverse change to a tribal cultural resource, they shall implement mitigation measures identified in the consultation process required under PRC Section 21080.3.2, or shall implement the following measures where feasible to avoid or minimize the project-specific significant adverse impacts: ▪ Avoidance and preservation of the resources in place, including, but not limited to: designing and building the project to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria. ▪ Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following: ▫ Protecting the cultural character and integrity of the resource ▫ Protecting the traditional use of the resource ▫ Protecting the confidentiality of the resource ▪ Establishment of permanent conservation easements or other culturally appropriate property management criteria for the purposes of preserving or utilizing the resources or places. ▪ Native American monitoring by the appropriate tribe during soil disturbance for all projects in areas identified as sensitive for potential tribal cultural resources and/or in the vicinity (within 100 feet) of known tribal cultural resources. **TCR-1(b) Unanticipated Tribal Cultural Resources Impact Minimization.** If unanticipated potential tribal cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and the appropriate tribal representative(s), the	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
	implementing agency, and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service [NPS] 1983) shall be contacted immediately to evaluate the find. If, in consultation with the implementing agency, the archaeologist and/or tribal representative determines the discovery to be a tribal cultural resource and thus, significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with tribal representatives. If the resource cannot be avoided, a mitigation plan shall be developed to address tribal concerns.	
Climate Change and Greenhouse Gas Emissions		
Impact GHG-1. Due to the inclusion of a larger number of projects, implementation of the 2024 RTP/SCS would potentially result in higher quantities of short-term GHG emissions than implementation of the 2020 RTP/SCS. However, with mitigation from the 2020 RTP/SCS EIR, impacts would remain less than significant.	**GHG-1. Construction Emissions Measures** ▪ BCAG shall and sponsor agencies can and shall ensure that diesel particulate exhaust from construction equipment apply the following applicable GHG-reducing measures recommended by the Butte County Air Quality Management District (BCAQMD): ▪ Fuel all off-road and portable diesel-powered equipment with CARB certified motor vehicle diesel fuel; ▪ Use diesel construction equipment meeting CARB's Tier 2 certified engines or cleaner (i.e., Tier 3 or 4) off-road heavy-duty diesel engines, and comply with State Off-Road Regulation; ▪ Use on-road heavy-duty trucks that meet CARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines, and comply with the State On-Road Regulation; ▪ Construction or trucking companies with fleets that do not have engines in their fleet that meet the engine standards identified in the above two measures may be eligible by proving alternative compliance; ▪ Electrify equipment when feasible; ▪ Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and ▪ Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel.	Less than significant with mitigation
Impact GHG-2. Implementation of the 2024 RTP/SCS would not increase GHG emissions compared to the 2022 baseline. This impact would remain less than significant.	None required	Less than significant
Impact GHG-3: Implementation of the 2024 RTP/SCS would not interfere with the GHG emissions goals of the 2022 Scoping Plan or SB	None required	Less than significant

Impact	Mitigation Measure (s)	Significance After Mitigation
375. Therefore, this impact would remain less than significant.		
Impact GHG-4. The 2024 RTP/SCS includes transit and active transportation projects that would reduce VMT and associated GHG emissions. In addition, the 2024 RTP/SCS would be consistent with statewide reduction targets identified in SB 32 and the 2022 Scoping Plan. Therefore, the project would not conflict with other statewide and local GHG reduction plans and policies. This impact would remain less than significant.	None required	No impact
Energy		
Impact E-1. Transportation improvement projects and the land use scenario envisioned by the proposed 2024 RTP/SCS would not result in an wasteful, inefficient or unnecessary consumption of energy resources. This impact would be less than significant.	None required	Less than significant
Impact E-2: The 2024 RTP/SCS would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This impact would less than significant.	None required	Less than significant
Geology and Soils		
Other Impact Issue Areas Analyzed. Section 4.11.3 Geology and Soils	**GEO-1(a)** For a 2024 RTP/SCS project involving a bridge, the lead agency 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 ground shaking zones. This can be accomplished through the placement of conditions on the project by the lead agency during individual environmental review. **GEO-1(b)** For a 2024 RTP/SCS project that involves cut slopes over 15 feet in height, the lead agency shall ensure that specific slope stabilization studies are conducted. Possible stabilization methods include buttresses, retaining walls, and soldier piles.	Less than significant with mitigation
Hydrology and Water Quality		
Other Environmental Issue Areas Analyzed. Section 4.11.5 Hydrology and Water Quality	**W-1(a)** The sponsor agency of a 2024 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.	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
	W-1(b) The sponsor agency of a 2024 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-1(c)** For a 2024 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. **W-2(a**) If a 2024 RTP/SCS project is located in an area with high flooding potential due a storm event or dam inundation, the individual 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-2(b)** For 2024 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.	
Land Use and Planning		
Other Environmental Issue Areas Analyzed. Section 4.11.6 Land Use and Planning	**LU-1(a)** The individual project lead agency of 2024 RTP/SCS projects with the potential to displace residences or businesses should assure that project-specific environmental reviews consider alternative alignments and developments that avoid or minimize impacts to nearby residences and businesses. **LU-1(b)** Where project-specific reviews identify displacement or relocation impacts that are unavoidable, the individual 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-1(c)** For all 2024 RTP/SCS 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.	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
Noise		
Impact NOI-1. Construction of individual projects facilitated by the 2024 RTP/SCS may temporarily generate increased noise levels relative to the 2020 RTP/SCS, potentially affecting nearby noise-sensitive land uses. Construction noise may still exceed noise standards and mitigation would reduce impacts to a less than significant level.	**N-1. Construction Noise Reduction.** BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for transportation projects. Butte County and cities in the County should implement these measures originally required by the 2020 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS. a) **Equipment Staging Areas.** Sponsor agencies of 2024 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. b) **Electrically-Powered Tools and Facilities.** If a particular project within 800 feet of sensitive receptors requires pile driving, the sponsor agency in which this project is located shall require the use of pile drilling techniques instead, where feasible. This shall be accomplished through the placement of conditions on the project during its individual environmental review. c) **Smart Back-up Alarms.** Sponsor 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). d) **Additional Noise Attenuation Techniques.** Sponsor agencies shall ensure that impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction be hydraulically or electrical powered wherever feasible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatically powered tools is unavoidable, use of an exhaust muffler on the compressed air exhaust can lower noise levels from the exhaust by up to about 10 dBA. When feasible, external jackets on the impact equipment can achieve a reduction of 5 dBA. Whenever feasible, use quieter procedures, such as drilling rather than impact equipment operation. e) **Stationary Noise Sources.** Locate stationary noise sources as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors will be adequately muffled.	Less than significant with mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
Impact NOI-2: Implementation of the 2024 RTP/SCS may increase operational noise sources including traffic-generated noise levels on highways and roadways, relative to the 2020 RTP/SCS, which could expose existing sensitive receptors to noise in excess of normally acceptable levels. Impacts would remain less than significant with mitigation.	**N-2: Transportation Noise Reduction.** BCAG AG shall and transportation project sponsor agencies can and should implement the following mitigation measures for transportation projects. Butte County and cities in the County should implement these measures originally required by the 2020 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS. a) Sponsor agencies of RTP/SCS projects shall complete detailed noise assessments using applicable guidelines (e.g., Federal Transit Administration Transit Noise and Vibration Impact Assessment for rail and bus projects and the California Department of Transportation Traffic Noise Analysis Protocol for roadway projects). The project sponsor 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. Where new or expanded roadways, transit, or rail are found to expose receptors to noise exceeding normally acceptable levels, the individual 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 design, including retrofit of existing structures with 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 individual environmental review pursuant to the regulations of the applicable lead agency.	Less than significant with mitigation
Impact NOI-3. Construction of new or modified projects facilitated by the 2024 RTP/SCS could temporarily generate groundborne vibration, similar to the 2020 RTP/SCS, potentially affecting nearby land uses. Policies in the 2024 RTP/SCS would limit vibration disturbance and ensure that high vibration levels during working construction hours are reduced to the extent feasible. However, construction vibration from pile-drivers may disturb people or damage buildings; impacts	Mitigation Measure N-1, above would reduce impacts to reduce impacts to a less significant level.	Less than significant with migitation

Impact	Mitigation Measure (s)	Significance After Mitigation
would remain less than significant with mitigation.		
Population and Housing		
Impact PH-1. The 2024 RTP/SCS would not result in substantial population growth in Butte County. This impact is less than significant.	None required	Less than significant
Impact PH-2. The 2024 RTP/SCS would not displace existing housing and people as transportation projects are developed. Impacts would be less than significant.	None required	Less than significant
Transportation		
Impact T-1. Implementation of proposed transportation improvements under the 2024 RTP/SCS would not result in additional conflicts with programs and plans related to the circulation system, relative to the 2020 RTP/SCS. Impacts would remain less than significant.	None required	Less than significant
Impact T-2. Implementation of proposed transportation improvements under the 2024 RTP/SCS have the potential to interfere with achievement of the VMT reductions set forth in CARB's 2022 Scoping Plan. Mitigation Measure TRA-1 would reduce impacts to less than significant levels for some projects, however, additional state policy actions and funding would be required to close the gap at the state level. Therefore, impacts would be similar to the 2020 RTP/SCS and remain significant and unavoidable.	**T-1**. The state recognized that additional state policy actions and funding would be required to close the VMT gap between what the MPOs could achieve through implementation of their SCSs, and reductions needed to meet state goals. Though the state must initiate these additional actions and funding programs, the exact form of the policies and funding programs must be collaboratively developed with input from MPOs, local agencies, and other organizations to ensure they provide the tools and incentives necessary to go beyond the SCSs in reducing VMT. Consequently, BCAG shall work collaboratively with Butte County and the cities of Chico, Gridley, Oroville, Biggs, and Town of Paradise to support implementation of regional and local-level strategies and measures to achieve further VMT reductions. Implementing agencies (i.e., Butte County and the cities of Biggs, Chico, Gridley, Oroville, and Paradise) shall implement the following strategies to reduce VMT. **Local Level:** Implementing agencies shall require implementation of VMT reduction strategies through transportation demand management (TDM) programs, impact fee programs, mitigation banks or exchange programs, in-lieu fee programs, or other land use project conditions that reduce VMT. Programs should be designed to reduce VMT from existing land uses, where feasible, and from new discretionary residential or employment land use projects. The following strategies from Quantifying Greenhouse Gas Mitigation Measure, CAPCOA, August 2010 were identified as strategies most suited to Butte	Significant and Unavoidable

Impact	Mitigation Measure (s)	Significance After Mitigation
	County and the cities of Biggs, Chico, Gridley, Oroville, and Town of Paradise, given the rural and suburban land use context: 1. **Increase diversity of land uses** – This strategy focuses on the inclusion of mixed uses within projects or in consideration of the surrounding area to minimize vehicle travel in terms of both the number of trips and the length of those trips. 2. **Provide pedestrian network improvements** – This strategy focuses on creating a pedestrian network within the project and connecting to nearby destinations. Projects in Butte County tend to be small, so the emphasis of this strategy would likely be the construction of network improvements that connect the project site directly to nearby destinations. Alternatively, implementation could occur through an impact fee program or benefit/assessment district targeted to various areas in the county designated for improvements through local or regional plans. Implementation of this strategy may require regional or local agency coordination and may not be applicable for all individual land use development projects. 3. **Provide traffic calming measures and low-stress bicycle network improvements** – This strategy combines the CAPCOA research focused on traffic calming with new research on providing a low-stress bicycle network. Traffic calming creates networks with low vehicle speeds and volumes that are more conducive to walking and bicycling. Building a low-stress bicycle network produces a similar outcome. Implementation options are similar to strategy 2 above. One potential change in this strategy over time is that e-bikes (and e-scooters) could extend the effective range of travel on the bicycle network, which could enhance the effectiveness of this strategy. 4. **Implement car-sharing program** – This strategy reduces the need to own a vehicle or reduces the number of vehicles owned by a household by making it convenient to access a shared vehicle for those trips where vehicle use is essential. Note that implementation of this strategy would require regional or local agency implementation and coordination and would not likely be applicable for individual development projects. 5. **Increase transit service frequency and speed** – This strategy focuses on improving transit service convenience and travel time competitiveness with driving. Given land use density in Butte County, this strategy may be limited to traditional commuter transit where trips can be pooled at the start and end locations or require new forms of demand-responsive transit service. The demand-responsive service could be provided as subsidized trips by contracting to private Transportation Network Companies (TNCs, such as Uber, Lyft, and Via) or taxi companies. Alternatively, a public transit operator could provide the subsidized service but would need to improve on traditional cost effectiveness by relying on TNC ride-hailing technology, using smaller vehicles sized to demand, and flexible driver employment terms where drivers are paid by trip versus by hour. Note that implementation of this strategy would require regional or local agency implementation, substantial changes to	

Impact	Mitigation Measure (s)	Significance After Mitigation
	current transit practices, and would not likely be applicable for individual development projects. 6. **Implement subsidized or discounted transit program** – This strategy reduces the need to own a vehicle or reduces the number of vehicles owned by a household by incentivizing individuals to use transit for their daily commute. This strategy depends on the ultimate building tenants – whether residential landlords or businesses – and may require monitoring. This strategy also relies on B-Line continuing to provide similar or better service throughout the county, in terms of frequency and speed. 7. **Encourage telecommuting and alternative work schedules** – This strategy relies on effective internet access and speeds to individual project sites/buildings to provide the opportunity for telecommuting. The effectiveness of the strategy depends on the ultimate building tenants and the nature of work done by tenants' employees (can the work be done remotely in the first place?); two factors that should be considered for potential VMT reduction. Effectiveness may also be limited in more rural areas of the county with limited broadband internet access. 8. **Provide ride-sharing programs** – This strategy focuses on encouraging carpooling and vanpooling by project site/building tenants, which depends on the ultimate building tenants; this should be a factor in considering the potential VMT reduction. **Regional** Implementing agencies shall require project modifications during the project design and environmental review stage of project development that would reduce VMT effects. For roadway capacity expansion projects, this would include but is not limited to demand management through transportation systems management and operations (TSMO) including the use of pricing.	
Impact T-3. Implementation of proposed transportation improvements under the 2024 RTP/SCS would not substantially increase hazards due to geometric design features (e.g., share curves or dangerous intersections) or incompatible uses (e.g., farm equipment) (less than significant), relative to the 2020 RTP/SCS. Impacts would remain less than significant.	None required	Less than significant
Impact T-4. Implementation of proposed transportation improvements under the 2024 RTP/SCS would not result in inadequate emergency access, relative to the 2020 RTP/SCS. Impacts would remain less than significant.	None required	Less than significant

Impact	Mitigation Measure (s)	Significance After Mitigation
Utilities and Service Systems		
Other Environmental Issue Areas Analyzed – Section 4.11.11 Utilities and Service Systems	**UTI-1(a)** The individual lead agency of a 2024 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. **UTI-1(b)** The individual lead agency of a 2024 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. **UTI-1(c)** The individual lead agency of a 2024 RTP/SCS project shall ensure that, if feasible, landscaping associated with proposed improvements is maintained using reclaimed water. **UTI-1(d)** The individual lead agency of a 2024 RTP/SCS project shall ensure that porous pavement materials are utilized, where feasible, to allow for groundwater percolation. **UTI-1(e)** The individual lead agency of a 2024 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.	Less than significant with mitigation
Wildfire		
Impact W-1. The 2024 RTP/SCS, which includes projects within areas of moderate, high, and very high fire hazard severity zones, would not substantially impair an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.	None required	Less than significant
Impact W-2: Implementation of proposed transportation improvements under the 2024 RTP/SCS would not result in inadequate emergency access, relative to the 2020 RTP/SCS. Impacts would remain less than significant.	**W-1.** Wildfire Risk Reduction If an individual transportation or land use project included in the 2024 RTP/SCS is located within or less than 2 miles from an SRA or very high fire hazard severity zones, the implementing agency shall require appropriate mitigation to reduce the risk. Examples of site-specific and project-specific actions may include some of, but are not limited to, the following measures, which are in accordance with the California Attorney General Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act: ▪ Increasing housing density and consolidated design, relying on higher density infill developments as much as possible	Significant and Unavoidable

Impact	Mitigation Measure (s)	Significance After Mitigation
	▪ Avoidance and minimization of low-density exurban development patterns or leapfrog-type developments (i.e., those with undeveloped wildland between developed areas) ▪ Decreasing the extent and amount of "edge," or interface area, where development is adjacent to undeveloped wildlands ▪ Creation of buffer zones and defensible space within and adjacent to the development, with particular attention to ensuring that vegetation will not touch structures or overhang roofs. It is also important that legal obligations are structured so that defensible space measures are retained over time ▪ Siting projects to maximize the role of low-flammability landscape features that may buffer the development from fire spread ▪ Undergrounding power lines ▪ Limiting development along steep slopes and amidst rugged terrain, so as to decrease exposure to rapid fire spread and increase accessibility for fire-fighting ▪ Placement of development close to existing or planned ingress/egress and designated evacuation routes to efficiently evacuate the project population and the existing community population, consistent with evacuation plans, while simultaneously allowing emergency access ▪ Placement of projects close to adequate emergency services ▪ Construction of additional points of ingress and egress and modification of evacuation routes to minimize or avoid increasing evacuation times or emergency access response times Fire hardening structures and homes—upgrading the building materials and installation techniques to increase the structure's resistance to heat, flames, and embers—beyond what is required in applicable building codes, both for new structures and existing structures in proximity to the new development Requiring fire-hardened communication to the project site including high-speed internet service Enhanced communication to the project population about emergency evacuation plans and evacuation zones Parking limitations to ensure access roads are not clogged with parked vehicles On-site water supply/storage to augment ordinary supplies that may be lost during a wildfire	

Impact	Mitigation Measure (s)	Significance After Mitigation
Impact W-3. The 2024 RTP/SCS, which includes projects in or near SRAS and lands classified as VHFHSZS, would require the installation and maintenance of associated infrastructure (such as roads, fuel breaks, power lines, and other utilities). However, these projects would include project specific fire protection measures that would reduce fire risk.	None required	Less than significant
Impact W-4. The 2024 RTP/SCS, which includes projects in or near SRAs and lands classified as VHFHSZS, could expose people or structures to significant risks ,including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Implementation of mitigation measure WF-1 and WF-2 would reduce impacts to less than significant with mitigation.	**WF-1 and WF-2.** Following a major wildfire, Butte County, and/or the relevant local jurisdiction, shall perform an assessment of landslide, erosion, and flood risk in impacted areas. The assessment shall consider slope, rainfall, and changes in surface or sub-surface runoff patterns. The County or local jurisdiction shall also develop and implement a plan to mitigate the risk of landslide or flooding, including implementing a monitoring and early warning system to alert the community of possible flood or debris flow events.	Less than significant with mitigation

1 Introduction

This document is a Supplemental Environmental Impact Report (SEIR) for the 2024 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) proposed by the Butte County Association of Governments (BCAG). This SEIR augments the previously certified Environmental Impact Report (EIR) for the 2016 RTP/SCS, as supplemented by the 2020 RTP/SCS SEIR (2020 SEIR) (State Clearinghouse No. 2016092038). The BCAG Board of Supervisors certified the 2016 EIR on December 8, 2016, at which time the 2016 RTP/SCS was also adopted. The 2020 RTP/SCS and 2020 SEIR were approved by the BCAG Board of Directors on December 10, 2020. For purposes of this SEIR, the previously certified 2016 EIR and 2020 SEIR are referred to herein as the 2016 EIR.

This section of the SEIR describes the following aspects of the 2024 RTP/SCS and SEIR: (1) project background; (2) purpose and legal authority; (3) SEIR background; (4) SEIR organization; (5) baseline and approach for impact analysis; and (6) environmental review process.

1.1 Project Background

As both the federally-designated metropolitan planning organization (MPO) and the State-designated regional transportation planning agency (RTPA) for Butte County, BCAG is required by both federal and State law to prepare an RTP to serve as a long-range (at least 20-year) transportation planning document. State and federal law also requires that the RTP be updated every four years. The proposed 2024 RTP/SCS is an update of the current 2020 RTP/SCS. The 2016 RTP/SCS was adopted by BCAG Board of Supervisor on December 8, 2016 and programs available transportation funding through the year 2040. The 2016 RTP/SCS includes lists of programmed and planned transportation projects to improve the transportation system during the 2016-2035 planning period. Among these listed projects were highway, road and street projects, aviation projects, and transit projects. Although a number of projects from the 2016 RTP/SCS have been completed, many have not. Additionally, new projects have been incorporated into the 2024 RTP/SCS. The remaining projects from the 2016 RTP/SCS and 2020 RTP/SCS that are yet to be completed, in addition to new projects added in this cycle, are included in the 2024 RTP/SCS.

1.2 Purpose and Legal Authority

Section 21000 of the California Public Resources Code, commonly referred to as the California Environmental Quality Act (CEQA), requires the evaluation of environmental impacts associated with all planning programs or development projects proposed. As such, this SEIR is an informational document for use by BCAG, other agencies, and the general public in their consideration and evaluation of the environmental consequences of implementing the proposed 2024 RTP/SCS.

In accordance with *CEQA Guidelines* Section 15121(a), the purpose of this SEIR is to:

- Inform public agency decision makers and the pubic of any significant environmental effects that would result from the 2024 RTP/SCS;
- Identify possible ways to minimize significant effects; and,
- Identify reasonable alternatives to the 2024 RTP/SCS.

This SEIR has been prepared in accordance with relevant provisions of CEQA and *CEQA Guidelines*, evaluates the additional projects listed in the 2024 RTP/SCS and updates the comparison to baseline conditions (for further discussion see Section 1.5, *Baseline and Approach for Impact Analysis*). Consistency with *CEQA Guidelines* sections pertaining to the applicability of SEIRs and program-level EIRs are provided below.

SEIRs are addressed in Section 15163 of the *CEQA Guidelines*, which states that:

> The Lead Agency may choose to prepare a supplement to an EIR rather than a subsequent EIR if any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.
>
> The supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised;
>
> A supplement to an EIR shall be given the same kind of notice and public review as is given to a draft EIR under Section 15087;
>
> A supplement to an EIR may be circulated by itself without the recirculating the previous draft or final EIR;
>
> When the agency decides whether to approve the project, the decision-making body shall consider the previous EIR as revised by the supplemental EIR. A finding under Section 15091 shall be made for each significant effect shown in the previous EIR as revised.

Pursuant to *CEQA Guidelines* Section 15163, BCAG prepared this SEIR because only minor additions and changes would be necessary to make the previously certified 2016 EIR adequately apply to the 2024 RTP/SCS. An SEIR is the appropriate level of CEQA documentation for several reasons. The document incorporates updates to the *CEQA Guidelines* since 2016 and includes analysis of environmental issue areas added to the *CEQA Guidelines* and not incorporated into the 2016 RTP/SCS EIR. The 2024 RTP/SCS would incorporate 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 Senate Bill (SB) 743. All of these components are anticipated to result in only minor updates to transportation projects and the land use scenario envisioned in the RTP/SCS (specifically focused on growth that has taken place since the last RTP/SCS).

The 2016 EIR was a Program EIR as defined in *CEQA Guidelines* Section 15168 because it enabled BCAG, as the Lead Agency, to examine the overall effects of a series of actions that can be characterized as one large project. Consistent with the 2016 EIR, this SEIR is a program EIR under Section 15168(a) of the *CEQA Guidelines*. Section 15168(a) states that:

> A Program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: (1) geographically; (2) as logical parts in a chain of contemplated actions; (3) in connection with issuance of rules, regulations, plans, or other general criteria, to govern the conduct of a continuing program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Once a Program EIR has been prepared, subsequent activities under the program must be evaluated to determine what, if any, additional CEQA documentation needs to be prepared. If the Program EIR

addresses the program's effects as specifically and comprehensively as possible, many subsequent activities could be found to be in the Program EIR scope and additional environmental documents may not be required (CEQA Guidelines § 15168(c)). When a Program EIR is relied upon for a subsequent activity, the Lead Agency must incorporate feasible mitigation measures and alternatives developed in the Program EIR into the subsequent activities (CEQA Guidelines Section 15168(c)(3)). If a subsequent activity would have effects not addressed in the Program EIR, the Lead Agency must prepare a new Initial Study leading to a Negative Declaration, Mitigated Negative Declaration, or project-level EIR. In this case, the Program EIR still serves a valuable purpose as the first-tier environmental analysis.

1.3 SEIR Background

In compliance with the *CEQA Guidelines* (§15063), BCAG solicited preliminary public agency comments on the project through distribution of a Notice of Preparation (NOP) and during a scoping meeting held on November 16, 2023 at 5:00 p.m. at the BCAG Conference Room Suite 150 in Chico.

The NOP was distributed to affected agencies and the public for the required 30-day period from November 9, 2023 to December 11, 2023. Table 1-1 summarizes the issues relevant to the SEIR that were identified in the NOP comments received and the SEIR sections where the issues are addressed. The NOP and NOP comments and letters received are included as Appendix A to this SEIR.

Table 1-1 NOP Comments and EIR Response

Commenter	Comment/Request	How and Where it was Addressed
Native American Heritage Commission	The commenter includes background information on AB 52 and SB 18 and recommends consultation with California Native Tribes.	Section 4.4, *Cultural and Tribal Cultural Resources*
State of California Justice Department	The commenter states that warehouses can bring various environmental impacts and that the Attorney General Office's Bureau of Environmental Justice has published a document containing best practices and mitigation measures for warehouse projects.	Section 2, *Project Description,* includes all transportation improvement projects contained in the 2024 RTP/SCS. There are no warehouse projects proposed.

1.4 Scope and Content

This SEIR has been organized into seven sections. These include:

1) **Introduction.** Provides the project background, and information about the purpose and legal authority of a SEIR, and SEIR content and scope.
2) **Project Description.** Identifies the project lead agency, presents and discusses the project objectives, project locations and specific project characteristics.
3) **Environmental Setting.** Provides a description of the existing physical setting of the project area and an overview of the progress in implementing the 2024 RTP/SCS.
4) **Analysis of Environmental Issues.** Describes existing conditions found in the project area and assesses potential environmental impacts that may be generated by implementing the proposed project and cumulative development in Butte County. These potential project impacts are compared to "thresholds of significance" in order to determine the nature and severity of

the direct and indirect impacts. Mitigation measures, intended to reduce adverse, significant impacts below threshold levels, are proposed where feasible. Impacts that cannot be eliminated or mitigated to less-than-significant levels are also identified.

5) **Other CEQA-Required Discussions.** Identifies the spatial, economic, or population growth impacts that may result from implementation of the proposed project, as well as long-term effects of the project and significant irreversible environmental changes.
6) **Alternatives.** Presents and assesses the potential environmental impacts of three alternatives (one no-build) analyzed in addition to implementation of the proposed 2024 RTP/SCS.
7) **References/Preparers.** Lists all published materials, federal, State, and local agencies, and other organizations and individuals consulted during the preparation of this SEIR. It also lists the SEIR preparers.

1.5 Baseline and Approach for Impact Analysis

The concept of a significant effect on the environment focuses on changes to the baseline physical conditions that will arise as a result of the project (*CEQA Guidelines* Section 15002(g)). Potential new impacts associated with the 2024 RTP/SCS are determined through this process as mandated by CEQA. Buildout of the 2016 EIR, as supplemented by the 2020 SEIR, is measured as the baseline, except in cases of changed circumstances or new impacts not evaluated in the prior documents. In these cases, existing conditions at the time the NOP for this SEIR was published are measured as baseline, consistent with Section 15125 of the *CEQA Guidelines*. As described above, the NOP for this SEIR was published on November 9, 2023.

As described above, the proposed 2024 RTP/SCS is an update of the current 2020 RTP/SCS. The impacts of the current 2020 RTP/SCS were analyzed in the previously certified 2020 SEIR, which was a Program EIR. The analysis in this SEIR is also programmatic and is focused on the potential changes in environmental effects that could result from the updates to the 2020 RTP/SCS that are included in the proposed 2024 RTP/SCS, including updates or changes to policies, projects, and growth scenarios. Therefore, this SEIR is being prepared to analyze only the changes to the 2020 RTP/SCS or changes in circumstances under which the RTP/SCS projects would be implemented since certification of the previous 2020 SEIR, which occurred in December 2020.

This SEIR programmatically analyzes the effects of buildout of the 2024 RTP/SCS, and the 2024 RTP/SCS consists of the probable future projects and includes a range of specific land use and transportation projects designed to meet current and projected future needs of Butte County. Therefore, the cumulative effects of the 2024 RTP/SCS from the probable future transportation system improvements and land use projects in the region are included in the analysis of the proposed 2024 RTP/SCS impacts.

For any issue areas where impacts would be similar to or less than the impact level identified in the previous 2020 SEIR, no further analysis was warranted. If previous mitigation measures from the previous EIRs still apply and would reduce impacts to a less-than-significant level, those measures are listed in the SEIR in the same manner as in the previous EIRs. Revisions to the mitigation measures include the replacement of “2016 RTP” and/or “2020 RTP/SCS” with “2024 RTP/SCS” along with minor clarification and revisions, as directed by BCAG. For environmental issue areas that may result in an increased level of impact or a potential change in impact level from the 2020 SEIR, based on new information or changes to regulations or circumstances since the 2020 SEIR

certification, those issue areas are further reviewed in this SEIR. These issues have been determined to be:

- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Climate Change and Greenhouse Gas Emissions
- Energy
- Noise
- Population and Housing
- Transportation
- Wildfire

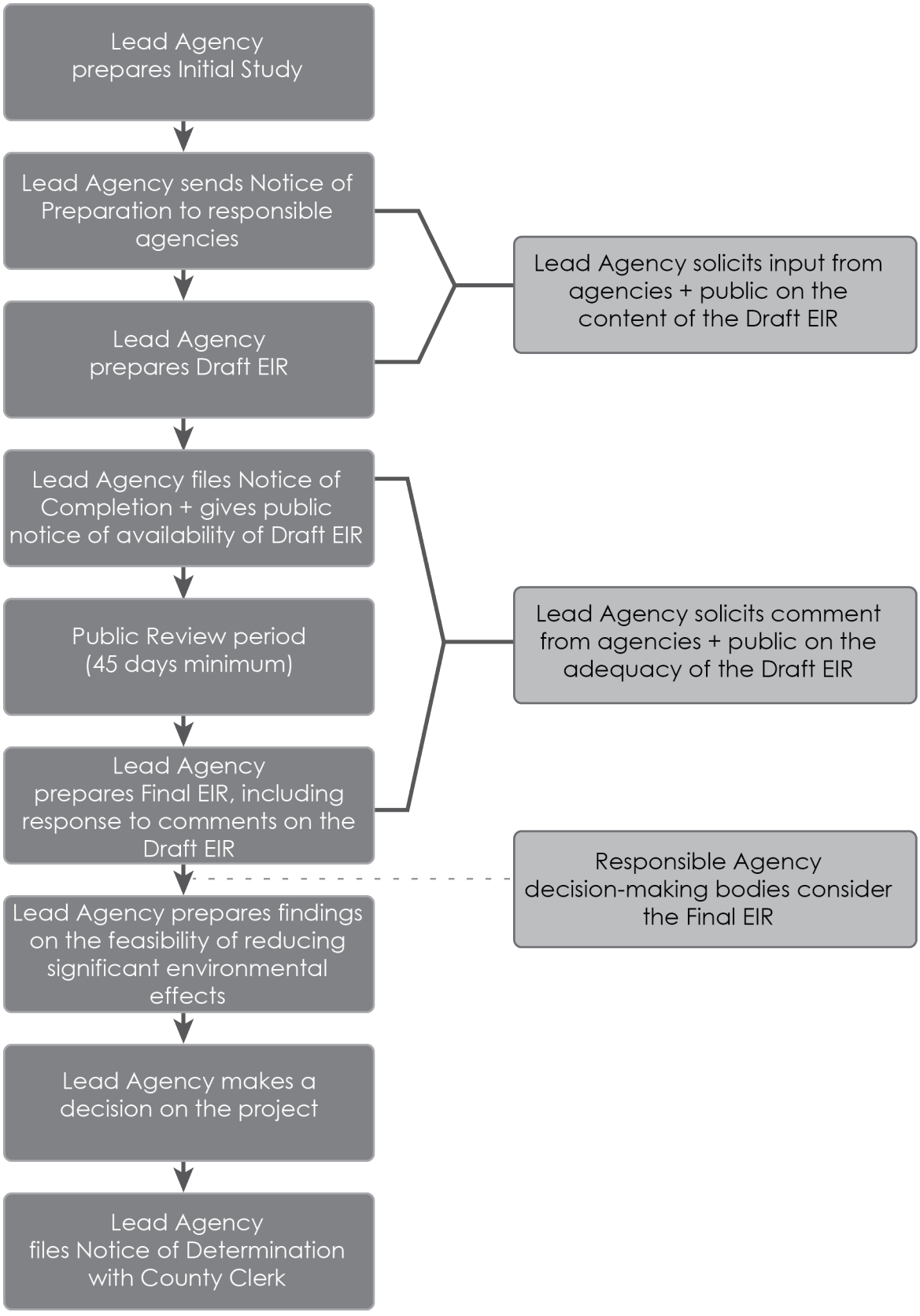
1.6 Environmental Review Process

The environmental impact review process, as required under CEQA, is summarized below and illustrated in Figure 1-1. The steps are presented in sequential order. Please note that the process summarized below and shown in Figure 1-1 is for an EIR consistent with the referenced sections of the *CEQA Guidelines*. However, Section 15163(e) of the *CEQA Guidelines* requires the same kind of notice and public review for a SEIR as given to a Draft EIR. Therefore, the process summarized below is also applicable to this SEIR.

1. **Notice of Preparation (NOP)**. After deciding that an EIR (or SEIR) is required, the Lead Agency (BCAG) must file a NOP soliciting input on the EIR scope (or SEIR scope) to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing (*CEQA Guidelines* Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days.
2. **Draft EIR Prepared.** The Draft EIR must contain: a) table of contents or index; b) summary; c) project description; d) environmental setting; e) discussion of significant impacts (direct, indirect, cumulative, growth-inducing and unavoidable impacts); f) a discussion of alternatives; g) mitigation measures; and h) discussion of irreversible changes. The contents of an SEIR, though not explicitly listed in the *CEQA Guidelines*, are generally assumed to be the same as a Draft EIR.
3. **Notice of Completion (NOC).** The Lead Agency must file a NOC with the State Clearinghouse when it completes the Draft EIR (or Draft SEIR) and prepare a Public Notice of Availability of a Draft EIR (or Draft SEIR). The Lead Agency must post the NOC in the County Clerk's office for 30 days (Public Resources Code Section 21092) and send a copy of the NOC to anyone requesting it (*CEQA Guidelines* Section 15087). Additionally, public notice of the Draft EIR (or Draft SEIR) availability must be given through at least one of the following procedures: a) publication in a newspaper of general circulation; b) posting on and off the project site; and c) direct mailing to owners and occupants of contiguous properties. The lead agency must solicit input from other agencies and the public and respond in writing to all comments received (Public Resources Code Sections 21104 and 21253). The minimum public review period for a Draft EIR (or Draft SEIR) is 30 days. When a Draft EIR (or Draft SEIR) is sent to the State Clearinghouse for review, the public review period must be 45 days unless the State Clearinghouse approves a shorter period (Public Resources Code 21091). Pursuant to Section 15163(d) of the *CEQA Guidelines*, a SEIR may be circulated by itself without recirculating the previous Draft EIR or Final EIR that it supplements.
4. **Final EIR.** A Final EIR (or Final SEIR) must include: a) the Draft EIR (or Draft SEIR); b) copies of comments received during public review; c) list of persons and entities commenting; and d) responses to comments.

5. **Certification of Final EIR.** Prior to making a decision on a proposed project, the Lead Agency must certify that: a) the Final EIR (or Final SEIR) has been completed in compliance with CEQA; b) the Final EIR (or Final SEIR) was presented to the decision-making body of the Lead Agency; and c) the decision making body reviewed and considered the information in the Final EIR (or Final SEIR) prior to approving a project (*CEQA Guidelines* Section 15090).
6. **Findings/Statement of Overriding Considerations**. For each significant impact of the project identified in the EIR (or SEIR), the Lead Agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible (*CEQA Guidelines* Section 15091). If an agency approves a project with unavoidable significant environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.
7. **Lead Agency Project Decision.** The Lead Agency may a) disapprove the project because of its significant environmental effects; b) require changes to the project to reduce or avoid significant environmental effects; or c) approve the project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (*CEQA Guidelines* Sections 15042 and 15043). Pursuant to Section 15163(e) of the *CEQA Guidelines*, when the Lead Agency decides whether to approve the project, the decision-making body shall consider the previous EIR as revised by the SEIR. A finding under Section 15091 of the *CEQA Guidelines* shall be made for each significant effect shown in the previous EIR as revised.
8. **Mitigation Monitoring Reporting Program.** When the Lead Agency makes findings on significant effects identified in the EIR (or SEIR), it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.
9. **Notice of Determination (NOD).** The Lead Agency must file a NOD after deciding to approve a project for which an EIR (or SEIR) is prepared (*CEQA Guidelines* Section 15094). A local agency must file the NOD with the County Clerk. The NOD must be posted for 30 days and sent to anyone previously requesting notice. Posting of the NOD starts a 30 day statute of limitations on CEQA legal challenges (Public Resources Code Section 21167[c]).

Figure 1-1 Environmental Review Process



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2 Project Description

This section describes the proposed project, including the project applicant, the project site and surrounding land uses, major project characteristics, project objectives, and discretionary actions needed for approval.

2.1 Lead Agency

Butte County Association of Governments
326 Huss Drive, Suite 150
Chico, California 95928

2.2 Lead Agency Contact Person

Iván García, Programming Manager
Butte County Association of Governments
326 Huss Drive, Suite 150
Chico, California 95928
igarcia@bcag.org

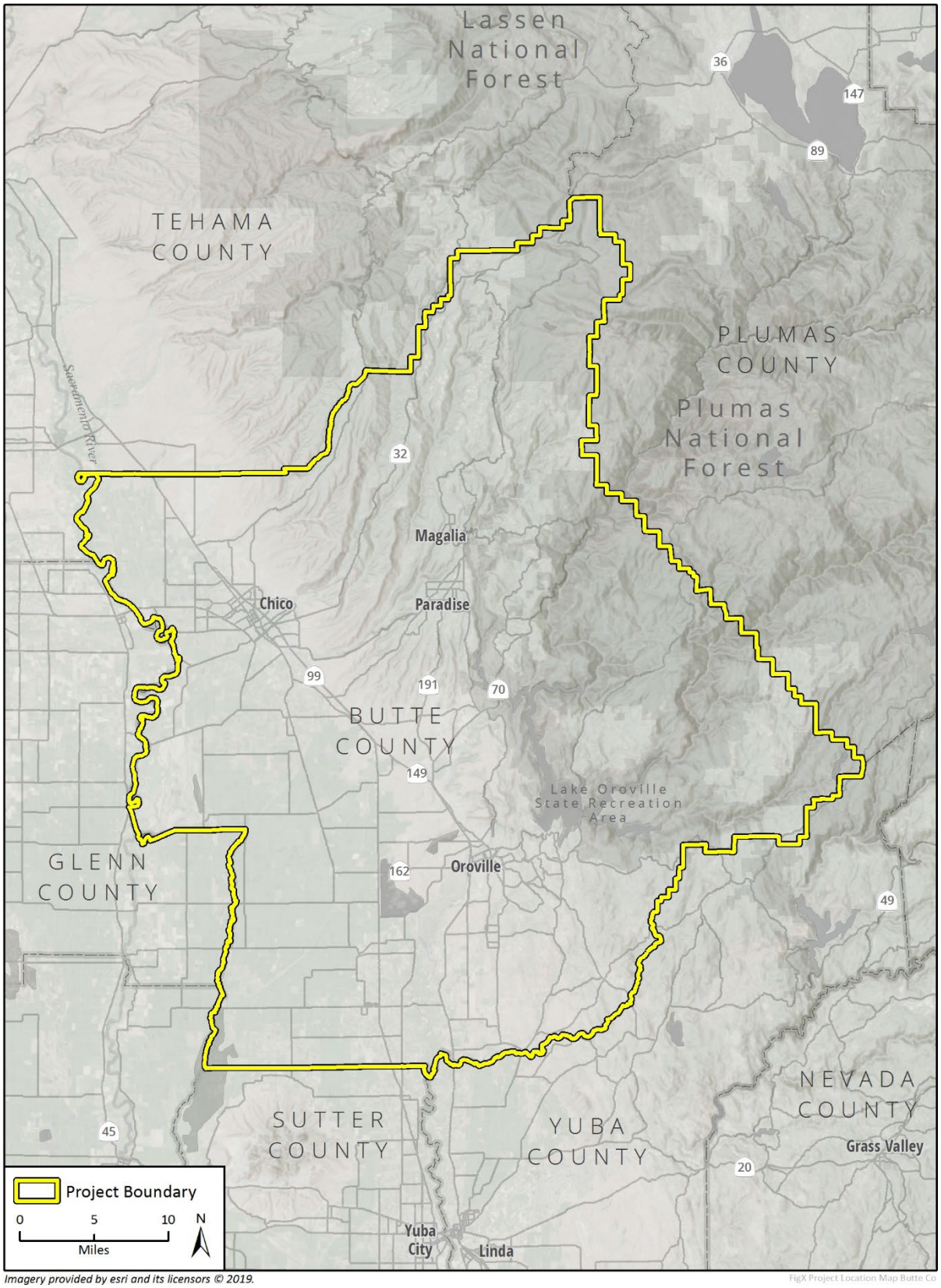
2.3 Project Location

The proposed 2024 RTP/SCS covers the entirety of Butte County including the unincorporated areas of the county and its incorporated cities, referred to herein as Plan Area. As shown in the Plan Area map in Figure 2-1, the County is situated at the northeastern end of the Sacramento Valley, bordered by Glenn County and Colusa County to the southwest, Tehama County to the north, Plumas County to the east, Yuba County to the southeast, and Sutter County to the south. State Route (SR) 99, one of California's major north-south routes, traverses the western and central portion of Butte County, while SR 70 provides north and south connectivity parallel to SR 99 in the southern portion of the County before heading northeast toward Plumas County between the cities of Oroville and Chico. SR 32 provides connectivity to the east and west along the northern portion of the County and SR 191 and 162 provide connectivity within the central portion of the County.

Butte County's 1,677 square miles encompass a diverse topography, ranging from approximately 60 feet above mean sea level (msl) in the Sacramento Valley at the County's western border, to 7,120 feet above msl at the Butte County High Point in the Plumas National Forest in the northeastern portion of the County.

The region is largely rural in character, with urban areas concentrated in the west-central, non-mountainous portion of Butte County. Three of Butte County's five incorporated cities, Biggs, Oroville, and Gridley, are located in the southern portion of the County. The incorporated Town of Paradise is located in the central portion of the County in the foothills east of Chico. Other town centers such as Forest Ranch, Cohasset, Stirling City and Forbestown are located in the mountains throughout the eastern portion of Butte County.

Figure 2-1 Regional Location



Capital improvement projects identified in the Regional Transportation Plan (RTP) are located on state highways, county roads and locally owned streets, as well as on airport property, railroad corridors, transit district property, public lands (such as recreation areas or state/federal forests), and public utility lands (such as easement areas). A description of the Plan Area is also provided in Section 3.0, *Environmental Setting*.

2.4 Project Objectives

The Butte County Association of Governments (BCAG), as both the federally-designated metropolitan planning organization (MPO) and the state-designated regional transportation planning agency (RTPA) for Butte County, is required by both federal and state law to prepare a long-range (at least 20-year) transportation planning document known as an RTP. The RTP is an action-oriented document used to achieve a coordinated and balanced regional transportation system. This section summarizes the RTP's objectives and responsibilities, as informed by relevant legislation.

BCAG also has the responsibility to update its Sustainable Communities Strategy (SCS) as part of the RTP update, pursuant to the requirements of California Senate Bill (SB) 375 as adopted in 2008 (discussed further below). 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).

The California Transportation Commission's (CTC) document *2017 California Regional Transportation Plan Guidelines* serves as the guidance for RTP development. Under both federal and state law, BCAG must update its RTP every four years.[1]

Sustainable Communities & Climate Protection Act Requirements (SB 375) Requirements

The Sustainable Communities Strategy and Climate Protection Act, SB 375 (codified at CAL.GOVT CODE §§ 14522.1, 14522.2, 65080.01, 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588; CAL. PUB. RES. CODE §§ 2161.3, 21155, 21159.28), is a law passed in 2008 by the California legislature that requires each MPO to demonstrate, through the development of an SCS, how its region will integrate transportation, housing, and land use planning to meet the GHG reduction targets set by the state. In addition to creating requirements for MPOs, it also creates requirements for the CTC and CARB. Some of the requirements include the following:

- The CTC must maintain guidelines for the travel demand models that MPOs develop for use in the preparation of their RTPs;
- CARB must develop regional GHG emission reduction targets for automobiles and light trucks for 2020 and 2035 by September 30, 2010 (completed);
- Each MPO must prepare an SCS as part of its RTP to demonstrate how it will meet the regional GHG targets;
- Each MPO must adopt a public participation plan for development of the SCS that includes informational meetings, workshops, public hearings, consultation, and other outreach efforts (completed);

[1] 23 C.F.R. §450.322(c); Gov. Code §65080(d).

- If an SCS cannot achieve the regional GHG target, the MPO must prepare an Alternative Planning Strategy (APS) showing how it would achieve the targets with alternative development patterns, infrastructure, or transportation measures and policies;
- Each MPO must prepare and circulate a draft SCS at least 55 days before it adopts a final RTP;
- After adoption, each MPO must submit its SCS to the CARB for review; and
- CARB must review each SCS to determine whether, if implemented, it would meet the GHG targets. CARB must complete its review within 60 days.

In 2018, CARB revised GHG reduction targets for the BCAG region from on-road light-duty trucks and passenger vehicles as a six percent reduction from 2005 emissions levels by 2020 and a seven percent reduction from 2005 emissions levels by 2035. These targets apply to the BCAG region as a whole for all on-road light-duty trucks and passenger vehicles emissions, and not to individual cities or sub-regions.

SB 375 specifically states that local governments retain their autonomy to plan local General Plan policies and land uses. The 2024 RTP/SCS provides a regional policy foundation that local governments may build upon, if they so choose. The 2024 RTP/SCS includes and accommodates the quantitative growth projections for the region. SB 375 also requires that the RTP's forecasted development pattern for the region be consistent with the eight-year regional housing needs as allocated to member jurisdictions through the Regional Housing Needs Allocation (RHNA) process under state housing law.

In addition, this Supplemental EIR lays the groundwork for the streamlined review of qualifying development projects. Qualifying projects that meet statutory criteria and are consistent with the 2024 RTP/SCS are eligible for streamlined environmental review pursuant to CEQA under SB 375 and other laws.

Fixing America's Surface Transportation Act (FAST Act)

The most recent federal transportation legislation, Fixing America's Surface Transportation (FAST) Act builds on the changes made by MAP-21, and was enacted in 2015. The Moving Ahead for Progress in the 21st Century Act (MAP-21), enacted in 2012, made a number of reforms to the metropolitan and statewide transportation planning processes, including incorporating performance goals, measures, and targets into the process of identifying needed transportation improvements and project selection. The FAST Act includes provisions to support and enhance these reforms. Public involvement remains a hallmark of the planning process.

The FAST Act continues requirements for a long-range plan and a short-term transportation improvement program (TIP), with the long-range statewide and metropolitan plans now required to include facilities that support intercity transportation, including intercity buses. The statewide and metropolitan long-range plans must describe the performance measures and targets that states and MPOs use in assessing system performance and progress in achieving the performance targets. Additionally, the FAST Act requires the planning process to consider projects/strategies to improve the resilience and reliability of the transportation system, address stormwater mitigation, and enhance travel and tourism.

Finally, in an effort to engage all sectors and users of the transportation network, the FAST Act requires that the planning process include public ports and private transportation providers, and further encourages MPOs to consult during this process with officials of other types of planning activities, including tourism and natural disaster risk reduction. MAP-21 and the FAST Act also

change criteria for MPO officials to provide transit provider representatives with equal authority and allow the representative to also serve as the representative of a local municipality.

Through the RTP development process, the FAST Act encourages BCAG to:

- Consult with officials responsible for other types of planning activities that are affected by transportation in the area (including State and local planned growth, economic development, environmental protection, airport operations, and freight movements) or to coordinate its planning process, to the maximum extent practicable, with such planning activities.[2]

Specifically, the FAST Act requires that the RTP planning process:

Provide for consideration of projects and strategies that will:

a) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
b) Increase the safety of the transportation system for motorized and non-motorized users;
c) Increase the security of the transportation system for motorized and non-motorized users;
d) Increase the accessibility and mobility of people and for freight;
e) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
f) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
g) Promote efficient system management and operation;
h) Emphasize the preservation of the existing transportation system.
i) Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
j) Enhance travel and tourism. [3]

Planning Final Rule – FAST Act

On May 27, 2016, the Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning Final Rule was issued, with an effective date of June 27, 2016, for Title 23 CFR Parts 450 and 771 and Title 49 CFR Part 613. This final rule states, “On or after May 27, 2018, an RTPA may not adopt an RTP that has not been developed according to the provisions of MAP-21/FAST Act as specified in the Planning Final Rule.” This rule applies to the 2024 RTP/SCS as its adoption date, if adopted, would occur after May 2018.

[2] 23 U.S.C. §134(g)(3)(A).
[3] 23 U.S.C. §134(h)(1).

Environmental Justice

BCAG is required to address social equity and environmental justice in the RTP. The legal basis for environmental justice stems from the Civil Rights Act of 1964, along with Executive Order 12898 (February 1994), which states that "each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." BCAG must evaluate how the 2024 RTP/SCS might impact minority and low-income populations, and must ensure that the 2024 RTP/SCS does not have a disproportionate adverse impact on such populations.

In addition, per 23 C.F.R. §450.316(a)(1)(vii), the participation plan that BCAG must develop and use must describe explicit procedures, strategies, and desired outcomes for "[s]eeking out and considering the needs of those traditionally underserved by existing transportation systems, such as low-income and minority households, who may face challenges accessing employment and other services." BCAG's public participation plan is available at: http://www.bcag.org/Planning/RTP--SCS/.

Regional Transportation Plans

As noted, the procedures for developing RTPs are provided in the CTC's Regional Transportation Plan Guidelines (2024). The guidelines identify the purpose of an RTP to be as follows:

1. Providing an assessment of the current modes of transportation and the potential of new travel options within the region
2. Projecting/estimating the future needs for travel and goods movement
3. Identification and documentation of specific actions necessary to address regional mobility and accessibility needs
4. Identification of guidance and documentation of public policy decisions by local, regional, state, and federal officials regarding transportation expenditures and financing and future growth patterns
5. Identification of needed transportation improvements, in sufficient detail, to serve as a foundation for the: (a) Development of the FTIP, and the State Transportation Improvement Program (STIP), (b) Facilitation of the National Environmental Policy Act (NEPA)/404 integration process and (c) Identification of project purpose and need
6. Employing performance measures that demonstrates the effectiveness of the system of transportation improvement projects in meeting the intended goals
7. Promotion of consistency between the CTP, the RTP and other plans developed by cities, counties, districts, California Tribal Governments, and state and federal agencies in responding to statewide and interregional transportation issues and needs
8. Providing a forum for: (1) participation and cooperation and (2) facilitation of partnerships that reconcile transportation issues which transcend regional boundaries; and,
9. Involving community-based organizations, the public, federal, State, and local agencies, California Tribal Governments, as well as local elected officials, early in the transportation planning process to include them in discussions and decisions on the social, economic, air quality and environmental issues related to transportation.

RTPs must include long-term horizons (at least 20 years) that reflect regional needs, identify regional transportation issues/problems, and develop and evaluate solutions that incorporate all

modes of travel. RTPs must also recommend a comprehensive approach that provides direction for programming decisions to meet the identified regional transportation needs. RTPs must also be fully consistent with the requirements of federal regulations, including conformity with the 1990 Clean Air Act Amendments and consistency with the Federal Transportation Improvement Program (FTIP).

Project Goals and Objectives

The purpose of the 2024 RTP/SCS is to provide a clear vision of the regional transportation goals, objectives, and policies in Butte County. The RTP provides short-term and long-term transportation strategies for implementation, which includes realistic and fiscally constrained alternatives. The purpose of the SCS is to demonstrate the integration of land use, housing, and transportation for the purpose of reducing GHG emissions from passenger vehicles. Policies 1 through 15 are the same as the 2020 RTP/SCS and Policy 16 has been added as a new policy to the 2024 RTP/SCS. The following goals and objectives have been identified for the 2024 RTP/SCS:

Policy 1: Highways, Streets, and Roads

Goal: A safe and efficient regional road system that accommodates the demand for movement of people and goods.

Objectives

1.1 Strive to improve safety and operations of local and state highway system.

1.2 Identify and prioritize improvements to the regional road system.

Policy 2: Transit

Goal: An efficient, effective, coordinated regional transit system that increases mobility for urban and rural populations, including those located in disadvantaged areas of the region.

Objectives

2.1 Meet all transit needs that are reasonable to meet.

2.2 Increase transit ridership at a rate that exceeds annual population growth rate for Butte County.

2.3 Promote community participation and education in transit planning and operations.

2.4 Maintain a reliable transit system.

Policy 3: Rail

Goal: A rail system that provides safe and reliable service for people and goods.

Objectives

3.1 Maintain and expand passenger service through Butte County.

Policy 4: Active Transportation

Goal: A connected regional transportation system for bicyclists and pedestrians.

Objectives

4.1 Work with local agencies to implement active transportation projects including those that connect to and improve access to transit facilities.

4.2 Assist local jurisdictions in pursuing grant funding.

4.3 Focus on urban infrastructure improvements that contribute to interconnectivity and safety for active transportation users.

4.5 Work with local agencies and the State to address crime and safety issues.

4.6 Facilitate regional connectivity to improve inter-regional active transportation utilization.

Policy 5: Goods Movement

Goal: A transportation system that enables safe movement of goods in and through Butte County.

Objectives

5.1 Provide an adequate regional road system for goods movement.

Policy 6: Aeronautics

Goal: A fully functional and integrated air service and airport system complementary to the countywide transportation system.

Objectives

6.1 Maintain daily commercial airline service to the Bay Area.

6.2 Work with local agencies to ensure compatible land uses around existing airports to reduce noise conflicts.

6.3 Ensure Airport Master Plans are updated and revised as necessary and required.

Policy 7: Intelligent Transportation Systems

Goal: ITS technologies are integrated in the planning and programming process.

Objectives

7.1 Maintain the North Valley Regional ITS Architecture Plan.

7.2 Apply Transportation Systems Management (TSM) strategies to projects where appropriate.

Policy 8: Transportation Financing

Goal: RTP project and strategy implementation is supported by effective financing strategies.

Objectives

8.1 Develop and adopt policies that will provide adequate funding resources for all transportation modes and strategies.

8.2 Work with cities, towns, and the County on development of a regional road network fee program.

Policy 9: Energy

Goal: Nonrenewable energy resources for transportation purposes are reduced.

Objectives

9.1 Increase public transit, carpooling/vanpooling, and active transportation modes.

Policy 10: Air Quality

Goal: Air quality standards set by the Environmental Protection Agency (EPA) and the State Air Resources Board are achieved.

Objectives

10.1. Coordinate transportation planning with air quality planning at the technical and policy level.

10.2 Implement transportation requirements established by Assembly Bill (AB) 32.

Policy 11: Quality of Travel and Livability

Goal: A safe, balanced, efficient and equitable regional transportation system that serves the needs of all community members in the region.

Objectives

11.1 Assist in efforts which enhance mobility for the region. The system should be optimized to maximize its productivity and provide convenient travel options for people and goods. The system should reduce both the time it takes to travel as well as the total costs of travel.

11.2 Assist in efforts which enhance reliability for the region. The system should be reliable so travelers can expect relatively consistent travel times from day-to-day for the same trip by mode(s).

11.3 Assist in preserving the transportation system and safety. The public's investment in transportation should be protected by maintaining the system to preserve it and ensure a safe system.

Policy 12: Land Use

Goal: Economical, long-term solutions to transportation problems are achieved by encouraging community designs supportive of walking, transit, and bicycling.

Objectives

12.1. Implement innovative land use policies that connect the community and make it easier to travel without a vehicle.

12.2 Plan future roads to accommodate land uses at a regional level.

12.3 Encourage and support development of complete streets and active transportation projects that are pedestrian friendly and encourage bicycle trips and the use of public transit.

12.4 Preserve productive farmland and land that provides habitat for rare, endangered or threatened species.

12.5 Ensure Goals and Policies are consistent at both the regional and local levels.

Policy 13: Sustainability

Goal: Sustainable Community Strategies are incorporated into the regional transportation planning process to reduce greenhouse gas emissions, improve social equity, and cultivate a healthy environment and prosperous economy.

Objectives

13.1 Work towards a transportation system that is designed to provide an equitable level of transportation services for all populations.

13.2 Work towards a transportation system that complements and fosters efficient development patterns and that optimizes travel.

13.3 Make transportation decisions and investments that support a prosperous economy and ensure that the transportation system plays a significant role in raising the region's standard of living.

Policy 14: Housing

Goal: BCAG supports and collaborates on proactive efforts to address regional housing needs.

Objectives

14.1 Coordinate with cities, town and county on development of Regional Housing Needs Plan (RHNP) updates.

14.2 Work with cities, town and county to implement BCAG's RHNP.

14.3 Work with cities, town and county on efforts to develop housing in locations where jobs, services, amenities and transit and active transportation infrastructure already exist.

Policy 15: Emergency Preparedness

Goal: BCAG supports and collaborates on proactive emergency planning and projects. Projects that increase emergency readiness and preparedness include upgrading and maintaining roadways, public transit or facilities that support emergency situations.

Objectives

15.1 Work with the cities, town, and county on development of a regional road network that facilitates emergency response and emergency evacuations.

15.2 Actively assist local jurisdictions with pursuit of grant funding for projects that enhance emergency preparedness.

Policy 16: Outreach and Coordination

Goal: BCAG provides a forum for participation and cooperation in transportation planning and facilitates relationships between stakeholders that transcend jurisdictional boundaries to address regional transportation issues.

Objectives

16.1. Assist jurisdictions in local transportation planning.

16.2 Promote consistency among all levels of local transportation planning.

16.3 Promote community member participation and education in transportation planning.

2.5 Project Characteristics

As described above, the 2024 RTP/SCS is an update to the current 2020 RTP/SCS that was adopted in December 2020. The 2024 RTP/SCS reflects changes in legislative requirements, local land use policies, and resource constraints that have occurred since adoption of the current 2020 RTP/SCS. The 2024 update to the 2020 RTP/SCS is focused on continued implementation of the 2020 RTP/SCS, with minor updates to ensure consistency with federal, State, and local planning requirements.

The most notable changes to the 2020 RTP/SCS in this 2024 update include the assistance of Caltrans District 3 and the support of the California Transportation Commission which have advanced the programming of the SR 70 corridor safety projects which is now nearly complete. In addition, the Butte region has secured over $91.3 million for bicycle and pedestrian projects in the Active Transportation Program through the California Transportation Commission for Cycles 1-6. With the SR 70 safety project nearly complete, BCAG's focus has now shifted to maintaining the regional road network, improving the Butte Regional Transit service, programming active transportation projects, and moving the North Valley Rail project through the project development phases.

The 2024 RTP/SCS transportation improvements project list is an update the 2020 RTP/SCS project list. As such it removes projects that have been completed since 2020, modifies some projects that continue to be on the list based on new information, and adds approximately 72 net new minor projects to the list.[4] None of the modified or new projects on the 2020 RTP/SCS list would be substantially different in terms of geographical location, type of project, or the size of the project to those on the 2020 RTP/SCS list. A list of transportation improvement projects included in the proposed 2024 RTP/SCS is shown in Table 2-1. The right column in the table denotes if the projects were included in the 2020 RTP/SCS and if there has been a change to the project, denoted as a "No" in the column, that would require additional environmental review. There are 125 new projects in the 2024 RTP/SCS.

In addition, the land use scenario envisioned by the 2024 RTP/SCS is similar to that contained in the 2020 RTP/SCS. Briefly, this land use scenario, consistent with the 2024 RTP/SCS, concentrates the forecasted growth in population and employment in the region in urban areas and corridors of the County while preserving the distinct identity of existing cities and towns.

[4] Net new count does not include unconstrained projects in the 2020 RTP/SCS

2024 RTP/SCS Organization. BCAG adopted the previous 2020 RTP/SCS in December of 2020. This 2024 RTP/SCS reflects changes in legislative requirements, local land use policies, and resource constraints and is organized into four sections; three for the RTP and one for the SCS:

- **Policy Element.** Intends to identify legislative, planning, financial and institutional issues and requirements, as well as any areas of regional consensus. The Policy Element is meant to provide guidance to decision-makers of the implications, impacts, opportunities, and foreclosed options that will result from implementation of the RTP. California statue states that each RTP shall include a Policy Element that: describes the transportation issues in the region, identifies and qualifies regional needs expressed within both short and long-range planning horizons and maintains internal consistency with the Financial Element and fund estimates.
- **Action Element.** Consists of short-term and long-term activities that address regional transportation issues and needs for all transportation modes. The Action Element establishes assumptions which form the definition of what is acceptable based upon adopted goals, policies and objectives and are part of the projection equation. Further, the Action Element is separated into two parts: a discussion of regional issues, mandated transportation services, air quality, forecasting, regionally significant roads, alternatives, social impacts and RTP analysis; and a concluding section discussing each mode of transportation.
- **Financial Element.** Identifies the current and anticipated revenue sources and financing techniques available to fund the planned transportation investments described in the Action Element. The intent of the Financial Element is to define realistic transportation financial constraints and opportunities with current available data. Discussion centers of three main topics: current funding revenues, transportation expenditures, and potential funding sources for the future. The purpose of the Financial Element is to: identify financial forecasts for finding through BCAG, estimate the costs and revenues to implement the projects identified in the Action Element, identify funding shortfalls, and list the candidate projects if funding becomes available.
- **Sustainable Communities Strategy.** Demonstrates the ability of BCAG to meet the GHG targets that CARB has set for the BCAG region from on-road light-duty trucks and passenger vehicles. The first section covers the planning efforts which provide the foundation for the update of the SCS. The second section describes the growth and land use forecasts which make up the SCS as well as some of the analysis and tools which were used to generate them. The third section discusses the regional transportation investments associated with the SCS and the final section describes the public outreach and local partnerships which help shape the development of the SCS.

All of the 2024 RTP/SCS elements include provisions with the potential to create physical changes to the environment.

Table 2-1 Financially Constrained 2024 RTP/SCS Projects

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
BCAG	Transit	FTA Sections 5307, 5311, 5311(f), 5339, 5310 programs to support transit services provided by B-Line fixed route and paratransit. CTIPS: 20200000200	Programmed	Carryover
BCAG	Transit	Purchase of zero-emission buses, technology, charging equipment, and facility upgrades to support advanced technologies	Programmed	Carryover
BCAG	Transit	Construction of the Paradise Transit Center at Birch/Black Olive Drive	Programmed	Carryover
BCAG	Transit	B-Line will introduce microtransit services in Chico, Oroville, and Paradise to replace low-performing fixed routes	Planned	New
BCAG	Transit	B-Line will introduce non-emergency medical transportation services in Butte County to provide access to medical appointments not served by Paratransit/Dial-A-Ride	Planned	New
BCAG	Transit	B-Line will implement a mobile ticketing system with options for un-banked riders	Programmed	New
BCAG	Transit	B-Line will explore 15-minute headways on high-performing routes in Chico	Planned	New
BCAG	Passenger Rail	New inter-city commuter rail serving Chico, Gridley, Marysville-Yuba City, Plumas Lake and Sacramento. Environmental and 30% Design	Planned	Carryover
BCAG	Passenger Rail	Develop plans, specifications, & engineering (PS&E) package for construction	Planned	Carryover
BCAG	Passenger Rail	New inter-city commuter rail serving Chico, Gridley, Marysville-Yuba City, Plumas Lake and Sacramento. Design - Right-Of Way	Planned	New
BCAG	Bicycle & Pedestrian	In Oroville, on Lincoln Blvd., between Wyandotte Ave to Meyers. Construct Class 1 or 2 bicycle lanes and sidewalk improvements addressing gap closures along corridor and other safety features as needed	Planned	New
BCAG	Transit	SCS - 25% increase in transit frequency by 2035 with sustained operating costs thereafter. Includes 4 fixed route buses, infrastructure and/or fuel needs.	Planned	New
BCAG	Transit	SCS - 25% sustained transit frequency operating costs.	Planned	New
BCAG	Bicycle & Pedestrian	SCS - 10% increase in Class 1, II, and IV bike lane miles for 17.9 miles throughout region	Planned	New
BCAG	Bicycle & Pedestrian	SCS - Regional E-Bike Incentive Program. 500 new incentives at $500 each for $250k.	Planned	New
BCAG	Maintenance, Operations, and Safety	SCS - 100 new workplace charging stations for PHEV use at a cost of $500k ($5k each)	Planned	

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Biggs	Bicycle & Pedestrian	Construct new ped/bike facilities along 2nd & E Streets. CTIPS: 20200000198	Programmed	Carryover
Biggs	Bicycle & Pedestrian	Add pedestrian crossing facilities at B St. and E St and gap closure.	Planned	New
Butte County	Bicycle & Pedestrian	Curb, gutter, sidewalk, and crossing enhancements along Autrey Ln. and Monte Vista Ave. on Autry from Las Plumas to Monte Vista and along Monte Vista from Autry Ln to Lincoln Blvd. CTIPS: 20200000196	Programmed	Carryover
Butte County	Bicycle & Pedestrian	Class I bike facilities consistent with North Chico Specific Plan. 2.73 miles	Planned	New
Butte County	Bicycle & Pedestrian	Class II bike facilities consistent with North Chico Specific Plan. 1.55 miles.	Planned	New
Butte County	Bicycle & Pedestrian	Class I bike facilities consistent with Rio D' Oro Specific Plan - Phase 1. 1.03 miles	Planned	New
Butte County	Bicycle & Pedestrian	Class 2 bike facilities consistent with Rio D' Oro Specific Plan - Phase 1. 0.38 miles.	Planned	New
Butte County	Bicycle & Pedestrian	In South Oroville. Gap closure project connecting all four schools with pedestrian and bike safety enhancements. See MPO comments for details. Project is included in the 2020 RTP/SCS Appendix 10-9, Project number 22. 20200000218	Programmed	Carryover
Butte County	Bicycle & Pedestrian	SS4A Grant funds will be utilized to update or create new bicycle and pedestrian safety plans for Gridley, Oroville, and unincorporated Butte County.	Programmed	New
Butte County	Maintenance, Operations, and Safety	Cherokee Road at Thermalito Canal, 0.4 mile northeast of Table Mountain Blvd. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0258. CTIPS: 20200000056-2019-10	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Midway. At Western Canal, 0.2mile north of Nelson Shippee Rd. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0040. 20200000056-2019-11	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Ord Ferry Road . At West Branch Edgar Slough, 3.7 mile east of Glenn County Line. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0088. 20200000056-2019-12	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Oro-Chico Hwy. At Butte Creek, 1.1 mile east of Midway. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0033.20200000056-2019-13	Programmed	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Butte County	Maintenance, Operations, and Safety	Skyway Eastbound. At Butte Creek, 0.5 mile southeast of Humbug Rd. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0009R. 20200000056-2019-14	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Midway. At Union Pacific Rail Road, 1.2 miles north of Durham Dayton Hwy. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0255. 20200000056-2019-15	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Nelson Rd. At Edgar Slough O/F, 0.2 mile east of 7 Mile Lane. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0403. 20200000056-2019-16	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Nelson Rd. At Ash Creek, 1.5 mile west of the Midway. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0026. 20200000056-2019-17	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Durham Pentz. At West Branch Clear Creek, 4.1 miles east of State Route 99. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0248. 20200000056-2019-18	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	East Gridley Rd. At Feather River, 1.0 mile east of Larkin Rd. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0022.20200000056-2019-19	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	El Monte Ave. At Dead Horse Slough, 0.1 mile north of State Route 32.Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0392. 20200000056-2019-20	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Larkin Rd. At Sutter Butte Canal, 1.5 miles north of Oroville Gridley Rd. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0166. 20200000056-2019-21	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Durham Dayton Hwy. At Hamlin Slough, 1.6 mile west of State Route 99. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0423. 20200000056-2019-22	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Durham Dayton Hwy. At Butte Creek, 3.8 miles west of State Route 99. Scope is to address cracks with a Methacrylate Deck treatment. Bridge No. 12C0004. 20200000056-2019-23	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	County Bridge Preventive Maintenance Program (BPMP) Development. Staff time. 20200000056-2019-6	Programmed	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Butte County	Maintenance, Operations, and Safety	Ord Ferry Road. At Angel Slough 0.1 mile east of River Rd. Scope is to replace bearing pads and address cracks with methacrylate deck treatment and replace joint seals. Bridge No. 12C0241. 20200000056-2019-7	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Table Mountain Blvd. At Feather River, 0.1 mile northwest of Montgomery St. in Oroville. Scope is to address cracks with a Methacrylate Deck treatment and replace bearing pads. Bridge No. 12C0221. 20200000056-2019-8	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Skyway. At Magalia Reservoir Spillway at the Magalia Dam. Scope is to address delamination of deck with a polyester concrete overlay. Bridge No. 12C0395. 20200000056-2019-9	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Ord Ferry Road over Little Chico Creek west of River Road. Construct a new 2 lane bridge to replace the existing 2 lane low water crossings. Bridge No. 00L0092. 20200000056-2019-1	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	E Rio Bonito Rd. over Hamilton Slough 0.2 mile east of SR 99. Replace the existing functionally obsolete 2 lane bridge with a new 2 lane bridge. Bridge No. 12C0164. 20200000056-2019-3	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	E Rio Bonito Rd over Sutter-Butte Canal 0.8 mile east of SR 99. Replace the existing 2 lane structurally deficient bridge with a new 2 lane bridge. Bridge No. 12C0165. 20200000056-2019-4	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Ord Ferry Rd. Over Little Chico Creek, 1 mile east of River Rd. Replace the existing 2 lane structurally deficient bridge with a new 2 lane bridge. Bridge No. 12C0242. 20200000056-2019-5	Programmed	Carryover
Butte County	Capacity Increasing	Located at 0.2 miles east of SR 70. Scope is to replace the existing 1 lane structurally deficient bridge with a new 2 lane bridge. Bridge No: 12C011. 20200000107	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Skyway Westbound at Butte Creek. Bridge Replacement. Bridge No. 12C0009L	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Cana Hwy at Pine Creek. Scour Repair.	Programmed	Carryover
Butte County	Maintenance, Operations, and Safety	Afton Rd at Butte Creek . Bridge Replacement	Planned	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Butte County	Maintenance, Operations, and Safety	Cana Pine Creek Rd at Pine Creek. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Mesa Rd at Durham Mutual Irrigation Canal. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Dunstone Dr at Lower Honcut Creek. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Lower Wyandotte at Wyman Ravine. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Keefer Rd at Keefer Slough. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Oro-Bangor Hwy at North Fork Honcut Creek. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Oro-Bangor Hwy at Branch Rocky Honcut Creek. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Bradford Rd at Little Dry Creek. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	River Rd at Shady Oaks Slough. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	River Rd at Grassy Banks Slough. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Swedes Flat Rd at Rocky Honcut Creek. Bridge Replacement	Planned	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Butte County	Maintenance, Operations, and Safety	Neal Rd at Nance Canyon. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	Oro-Chico Hwy at Hamlin Slough. Bridge Replacement	Planned	New
Butte County	Maintenance, Operations, and Safety	Oro-Chico Hwy at Nance Canyon. Bridge Replacement	Planned	Carryover
Butte County	Maintenance, Operations, and Safety	East Gridley Rd. At Feather River, 1.0 mile east of Larkin Rd. Scope is to address Scour Repair . Bridge No. 12C0022.	Planned	New
Butte County	Bicycle & Pedestrian	The project limits are as follows; Lincoln Blvd from Palermo Rd to Baldwin Ave, Esperanza Ave from Lincoln Blvd to end. Baldwin Ave from Lincoln Blvd to Hewitt Ave, Hewitt Ave from Palermo Rd to Baldwin Ave, Bulldog Way from end to Hewitt Ave, Palermo Rd from Lincoln Blvd to Hewitt Ave.	Programmed	New
Butte County	Maintenance, Operations, and Safety	Pavement Rehabilitation of Lumpkin Road damaged as a result of the Bear Fire (North Complex West) and the subsequent disaster recovery work.	Programmed	New
Caltrans	Transit	New multi-story park and ride at SR 32/99 with charging stations. Bus Terminal and Transfer Point.	Planned	New
Caltrans	Maintenance, Operations, and Safety	SR 162 - In and near Oroville, from Feather River Bridge to Foothill Boulevard. Rehabilitate pavement and drainage systems, upgrade facilities to Americans with Disabilities Act (ADA) standards, upgrade signs and guardrail, and modify or replace signals and lighting. Includes bike/ped improvements identified separately by City of Oroville. 0J440. PM 15.6-18.5	Programmed	Carryover
Caltrans	Maintenance, Operations, and Safety	From 0.25 mile north of Durham Pentz Road to 0.25 mile south of Durham Pentz Road (PM 3.278 / 3.778). Improve existing intersection/roundabout to address collision pattern.	Planned	New
Caltrans	Maintenance, Operations, and Safety	R 70 - In Butte County on Route 70 from 0.1 mile east of Big Bend Road to 0.8 mile west of Shady Rest Area; also from 0.2 mile east of Shady Rest Area to Plumas County Line. Roadway preservation (CAPM) and drainage improvements. (SHOPP ID 20496) (The EA for this is 03-0J430 and it's in the 0 phase. BH	Programmed	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Caltrans	Maintenance, Operations, and Safety	SR 99 - In and near Gridley, from Hollis Lane to the south, to the Rio Plumas Plant to the north. Rehabilitate pavement, upgrade Transportation Management System (TMS) elements, rehabilitate drainage systems, and upgrade facilities to ADA Act standards. City of Gridley and BCAG contributed $4.2m for PS&E, RW Cap, and Con Cap Bike and ped and ADA identified separately for project.(EA 1H140). Total is $27.342m	Programmed	Carryover
Caltrans	Maintenance, Operations, and Safety	In and near Chico, from Muir Avenue to Route 99. Rehabilitate pavement, install signals and lighting, upgrade Transportation Management System (TMS) elements, rehabilitate drainage systems, and upgrade facilities to Americans with Disabilities Act (ADA) standards. 4H760. PM 5.0-10.2 R/L	Programmed	New
Caltrans	Bicycle & Pedestrian	In and near Chico, from W 8th Avenue to W 2nd Street. Add green bike lane treatment, install signs, and construct curb ramps. PM 7.1 - R 8.4 0J921. Adds 2.6 miles of bike treatment	Programmed	New
Caltrans	Maintenance, Operations, and Safety	Near Chico, from north of Wilson Landing Road to Keefers Slough Bridge. Raise the roadway grade, install cross-road culverts, and re-grade roadside ditches to prevent roadway flooding 2J070. PM 38.9-39.70	Programmed	New
Caltrans	Maintenance, Operations, and Safety	In Butte County from 0.3 mile south of Eaton Road OC to the Tehama County line. Pavement rehabilitation. 0N440. PM R36.0-45.975.	Planned	New
Caltrans	Bicycle & Pedestrian	In and near Oroville from Monumental Hill Road to Wildlife Area Access Road. Improve bicycle mobility by adding Class II bike lanes. 0N410. PM 10.862 - 15.30	Planned	New
Caltrans	Bicycle & Pedestrian	In Chico, at Main Street and Oroville Avenue. Upgrade traffic signals, install pedestrian push buttons and countdown signals, and restripe crosswalks to improve pedestrian safety.	Programmed	New
Caltrans	Maintenance, Operations, and Safety	In Butte County on Route 70 near Cottonwood Road near Oroville and other locations. Bridge scour mitigation. This project is also located in Colusa, Sutter, and Yolo Counties. 0J630. PM 18.5-18.5	Planned	New
Caltrans	Maintenance, Operations, and Safety	In Butte County at West Branch Feather River Bridge. Bridge deck rehabilitation. PM 28.22-28.22. 0N160.	Planned	New
Caltrans	Maintenance, Operations, and Safety	In Butte County near Biggs, on SR 99/ Rio Bonito. Intersection improvements to address safety and new signal. PM 8.39-8.39. 0N010.	Planned	New

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Caltrans	Maintenance, Operations, and Safety	In Butte County from 0.04 mile east of Nopel Avenue to 0.8 mile east of Addison Road; also located 1.0 mile east of Addison Road to 0.5 mile west of Line Road. Pavement preservation.PM 23.9-30.8; 31.0-31.57. 3G380	Planned	New
Caltrans	Bicycle & Pedestrian	In Butte County on various routes and locations. Upgrade crosswalks to high-visibility ladder type, upgrade pedestrian signs, upgrade edge line to 6". (3G360)	Planned	New
Caltrans	Maintenance, Operations, and Safety	In Butte County from 0.3 mile south of Eaton Road OC to the Tehama County line. Pavement rehabilitation. (0N440)	Planned	New
Caltrans	Bicycle & Pedestrian	SR 99 - In and near Gridley, from Hollis Lane to north of Ford Avenue. Construct bike and ped improvements for Caltrans SHOPP project on east side of SR 99. Project.(EA 1H140). 20200000216	Programmed	Carryover
Chico	Bicycle & Pedestrian	Project includes various non motorized "complete streets" improvements along the Esplanade Corridor from W. 11th Avenue to Memorial Avenue. Improvements are both on Esplanade and Oleander. 20200000194	Programmed	Carryover
Chico	Bicycle & Pedestrian	SR 99 Corridor Bikeway Project Phase 5 completes the gap adjacent to SR 99 from Chico Mall across 20th Street to the south end of Business Lane. Scope of project is develop a new bicycle and pedestrian crossing (bridge) over 20th Street in Chico. 20200000117	Programmed	Carryover
Chico	Bicycle & Pedestrian	From SR99 Phase 4 end to Forest Ave and Talbert. Class 2 bike facility (0.18 miles)	Planned	Carryover
Chico	Bicycle & Pedestrian	From Morning Rose Way to Bruce Rd. Class 1 bike facility (0.51 miles)	Planned	Carryover
Chico	Bicycle & Pedestrian	From W 11th Ave to East Ave. Class 2 bike facility (1.09 miles)	Planned	Carryover
Chico	Bicycle & Pedestrian	From HWY 32 to Picholine Way/ Concord Ave. Class 1 bike facility (.75 mile) on west side of Bruce Rd. and Class 2 on both sides or road.	Programmed	Carryover
Chico	Bicycle & Pedestrian	From Skyway to Remington Rd (1.04 miles). on west side of Bruce Rd. and Class 2 on both sides or road.	Programmed	Carryover
Chico	Bicycle & Pedestrian	Construct new combination Class 1 & 2 as appropriate from existing Class 1 bike path at the intersection of Honey Run and the Skyway to Paradise Memorial Path at the intersection of Skyway and Neal Rd in the Town of Paradise.	Planned	Carryover
Chico	Bicycle & Pedestrian	Construct Class II buffered bike lanes along E 4th St from Main St to Cypress St and along E 3rd St from Main St to Pine St. Possible lane removal and possible roundabout at intersection of E 4th St and Cypress St. L111 and L113	Planned	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Chico	Bicycle & Pedestrian	Construct Class II buffered bike lanes along W 4th St from Orange St to Main St and along W 3rd St from Walnut St to Main St. L109 and L110	Planned	Carryover
Chico	Bicycle & Pedestrian	Construct a Class IV bikeway along Vallombrosa Ave from Manzanita Ave to Camellia Way. L120	Planned	Carryover
Chico	Bicycle & Pedestrian	Construct a Class II bike lane along W 5th St from Chico River Rd to Broadway St. L139	Planned	New
Chico	Bicycle & Pedestrian	Construct a Class I shared-use path along Lindo Channel from Nord Ave to SR99. L184	Planned	New
Chico	Bicycle & Pedestrian	Construct a Class I shared-use path along Little Chico Creek from Pomona Ave to SR99.L230	Planned	New
Chico	Bicycle & Pedestrian	Construct a Class I shared-use path along SR99 from Vallombrosa Ave to Manzanita Ave. L326	Planned	Carryover
Chico	Bicycle & Pedestrian	Construct a Class II buffered bike lane along Mangrove Ave from Pine St/Cypress St to Cohasset Rd. L45	Planned	Carryover
Chico	Bicycle & Pedestrian	Construct a Class II buffered bike lane from East 1st/Longdellow Ave from Esplanade to Manzanita Ave. L48	Planned	New
Chico	Bicycle & Pedestrian	Construct Class IV parking-buffered bikeway along Main St from E 9th St to E 1st St and Class IV bikeway along Main St from E 1st St to Main St end. Construct Class II bike lanes along Broadway St from W 1st St to W 9th St. L61 and L151. Preliminary Engineering	Programmed	New
Chico	Bicycle & Pedestrian	Construct Class IV parking-buffered bikeway along Main St from E 9th St to E 1st St and Class IV bikeway along Main St from E 1st St to Main St end. Construct Class II bike lanes along Broadway St from W 1st St to W 9th St. L61 and L151	Planned	New
Chico	Bicycle & Pedestrian	Construct Class IV bikeway along Cohasset Rd from Manzanita Ct to Eaton Rd.L164	Planned	New
Chico	Bicycle & Pedestrian	Construct Class I shared-use path at Annie's Glen bike path access point connector from south of Vallombrosa to Mangrove Ave/Annie's Glen bike path.L173	Planned	New
Chico	Bicycle & Pedestrian	Construct Class IV bikeway along Nord Ave from W Sacramento Ave to W 8th Ave. L114	Planned	New
Chico	Bicycle & Pedestrian	Construct pedestrian-scale lighting along Peterson Memorial Drive from the CARD Community Center to Vallombrosa Ave. L119	Planned	New

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Chico	Bicycle & Pedestrian	Construct various bike improvements along different portions of Wall St. Class I shared-use path from E 4th St to E 5th St. Class III bike boulevard from E 8th St to E 7th St, E 6th St to E 5th St, and E 1st St to E 4th St. L144, L146, L147, L148	Planned	New
Chico	Bicycle & Pedestrian	Construct Class III bike boulevard along Neal Dow Ave from Hillview Way to E Lindo Ave. L44	Planned	New
Chico	Bicycle & Pedestrian	Construct Class II buffered bike lane with green paint along W Sacramento Ave from Warner St to Esplanade.L12	Planned	New
Chico	Bicycle & Pedestrian	From Hicks Lane to Cohasset. Construct new Class IV bike path. Road widening identified as separate project. Nexus 606	Planned	Carryover
Chico	Bicycle & Pedestrian	Bike ped improvements on the Esplanade Corridor between Nord Highway and Eaton Road with multi-modal "Complete Streets" from two to four lanes, with bicycle, pedestrian, and transit improvements. Capacity elements of project identified separately. 10200000234 Nexus 608	Programmed	Carryover
Chico	Bicycle & Pedestrian	From Little Chico Creek to E. 20th Street. Class 2 bike ped improvements. Construction of new 2 lane street and bridge at Little Chico Creek is identified separately. Nexus 615	Planned	Carryover
Chico	Bicycle & Pedestrian	From Hegan Lane to Park Ave. Construct Class 2 as part of Midway Widening project. Nexus 617	Planned	Carryover
Chico	Bicycle & Pedestrian	From Native Oak Drive to Humboldt Rd. Construct Class 1 path as part of new Yosemite connection project. Nexus 614	Planned	Carryover
Chico	Bicycle & Pedestrian	Construct Class III bike boulevard along North Ave from Lupin Ave to Manzanita Ave. L214	Planned	New
Chico	Bicycle & Pedestrian	Install continuous bike lanes, curbs, gutter, sidewalks and bus pull-outs. REAP 2.0 Chico	Programmed	New
Chico	Bicycle & Pedestrian	Class II along North Cedar St from W. Sacramento Ave to 4th Ave	Planned	New
Chico	Bicycle & Pedestrian	Class I bike facilities consistent with Barber Yard Specific Plan - Phase 1	Planned	New
Chico	Bicycle & Pedestrian	Class I bike facilities consistent with Barber Yard Specific Plan - Phase 2	Planned	New
Chico	Bicycle & Pedestrian	Class I bike facilities consistent with Barber Yard Specific Plan - Phase 3	Planned	New

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Chico	Bicycle & Pedestrian	From just west of Ceres to E. Lassen. Add Cass 2 bike lanes and pedestrian improvements as part of widening project. Nexus 607-01	Planned	Carryover
Chico	Bicycle & Pedestrian	From Ceanothus to Marigold. Add Class 2 bike lanes & pedestrian improvements as part of widening project. Nexus 607-02	Planned	Carryover
Chico	Bicycle & Pedestrian	From Marigold Av. To near Lance Ter. Phase 3. Add Class 2 bike lanes & pedestrian improvements as part of widening project. Nexus 607-03	Planned	Carryover
Chico	Capacity Increasing	In Chico 0.5 miles south of Humboldt Rd on Bruce Road over Little Chico Creek. Project includes replacement of an existing 2-lanebridge with a new 4-lane bridge including reconstruction of bridge approaches. New bridge incorporates a class I bicycle facility.20200000204.	Planned	Carryover
Chico	Maintenance, Operations, and Safety	City of Chico Bridge Preventive Maintenance Program (BPMP) Development. Staff time. 20200000056-2019-27	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Vallombrosa Ave. At Big Chico Creek between 1st St and Memorial Way. Scope of the work includes rock slope protection (RSP) and scour mitigation.20200000056-2019-28	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Park Ave. At Little Chico Creek, 0.1 mile north of 11th Street. Scope of the work includes rock slope protection (RSP) and scour mitigation. 20200000056-2019-29	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Warner St. At Big Chico Creek between 1st St and Legion Ave. Scope of the work includes rock slope protection (RSP) and scour mitigation, joint seal. 20200000056-2019-30	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Bruce Rd. At S Fork Dead Horse Slough, just north of State Route 32. Scope of the work includes rock slope protection (RSP) and scour mitigation.20200000056-2019-31	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	E 5TH Ave. At Lindo Channel, at E. Lindo Ave. Scope of the work includes rock slope protection (RSP), scour mitigation and Methacrylate Deck treatment.20200000056-2019-32	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Cypress St. At Little Chico Creek between Humboldt Ave and 12th St. Scope of the work includes rock slope protection (RSP), scour mitigation and Methacrylate Deck treatment. 20200000056-2019-33	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Main St. At Big Chico Creek, 0.15 mile north of 2nd St. Scope of work includes joint seals. 20200000056-2019-34	Programmed	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Chico	Maintenance, Operations, and Safety	Mangrove Ave. At Lindo Channel between 10th and Cohasset. Scope of work includes spall repair joint seal and Methacrylate Deck treatment. 20200000056-2019-35	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Walnut St. At Little Chico Creek between Dayton Rd and 9th St. Scope of the work includes rock slope protection (RSP), scour mitigation and Methacrylate Deck treatment. 20200000056-2019-36	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Midway Rd. At Comanche Creek 0.1 mile south of Park Ave. Scope of work includes Methacrylate Deck treatment and spall repairs. 20200000056-2019-37	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Longfellow Ave. At Lindo Channel between 1st and Manzanita. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-38	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Bruce Rd. At Little Chico Creek, 0.5 mile south of Humboldt Rd. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-40	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Skyway Av. At Little Chico-Butte CR DV CH, 0.4 mile northwest of Humbug Rd. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-41	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Forest Ave. At Little Chico Creek, just south of Humboldt Rd. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-42	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Manzanita Ave. At Lindo Channel between East Ave & Hooker Oak. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-43	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Mill St. At Little Chico Creek, 0.1 mile north of 12th St. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-44	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Manzanita Ave. At Big Chico Creek between Vallombrosa and Centennial. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-45	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Cohasset Rd. At Sycamore Creek Tributary, 0.7 mile north of Eaton Rd. Scope of repairs includes joint seals. 20200000056-2019-46	Programmed	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Chico	Maintenance, Operations, and Safety	Broadway St. At Little Chico Creek just south of 9th St. Scope of work includes AC deck removal Methacrylate Deck treatment, wingwall and backwall repairs. 20200000056-2019-47	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Pine St. At Little Chico Creek between Humboldt Ave and 12th St. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-48	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Chestnut St. At Little Chico Creek at W. 9th St. Scope of work includes Methacrylate Deck treatment. 20200000056-2019-49	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Ivy St. Over Little Chico Creek between 9th & 11th Streets. Rehabilitate and widen the existing 2 lane bridge to a full width 2 lanes with shoulders. Bridge No. 12C0279. 20200000056-2019-24	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Pomona Rd. Over Little Chico Creek, 0.4 mile south east of Miller Ave. Replace the existing 2 lane bridge, without adding lane capacity. Bridge No. 12C0328, Project #5037(024) , 5037(036). 20200000056-2019-25	Programmed	Carryover
Chico	Maintenance, Operations, and Safety	Salem Street. Over Little Chico Creek, 0.1 mile north of 10th St. Rehabilitate functionally obsolete 2 lane bridge. No Added Lane capacity. Bridge No. 12C0336.). 20200000056-2019-26	Programmed	Carryover
Chico	Capacity Increasing	Project is located just north of W Lindo Ave. Replace the existing 1 lane structurally deficient bridge with a new 2 lane bridge. Bridge No 12C0066. 20200000108	Programmed	Carryover
Chico	Capacity Increasing	From Skyway to SR 32, widen Roadway (Bridge included as separate project). Nexus 601	Programmed	Carryover
Chico	Capacity Increasing	From Ivy Street to Park Ave. connect existing Commerce Ct. to Park Avenue via Westfield Lane. Nexus 602	Programmed	Carryover
Chico	Capacity Increasing	Widen E. 20th St from 3 to 4 lanes from Notre Dame Blvd to Bruce Rd. Nexus 603	Planned	Carryover
Chico	Capacity Increasing	From Hicks Lane to Cohasset. Widen and extend to 4 lanes with median and new bridge at Sycamore Creek Tributary. Bike and Ped improvements identified separately. Nexus 606	Planned	Carryover
Chico	Capacity Increasing	From just west of Ceres to E. Lassen. Widen from 1 lane to 2 lanes per direction with median. Bike and Ped improvements identified separately. Nexus 607-01	Planned	Carryover
Chico	Capacity Increasing	From Ceanothus to Marigold. Widen from 1 lane to 2 lanes per direction with median. Bike and Ped improvements identified separately. Nexus 607-02	Planned	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Chico	Capacity Increasing	From Marigold Av. To near Lance Ter. Phase 3. Widen from 1 lane to 2 lanes per direction with median. Bike and Ped improvements identified separately. Nexus 607-03	Planned	Carryover
Chico	Capacity Increasing	Widening and improving the Esplanade Corridor between Nord Highway and Eaton Road with multi-modal "Complete Streets" from two to four lanes, with bicycle, pedestrian, and transit improvements. Bike ped identified separately. 10200000234 Nexus 608	Programmed	Carryover
Chico	Capacity Increasing	From SR 32 to Humboldt Rd. Construct new 2 lane connection (Partially completed to Native Oak Drive. This project extends new connection to Humboldt Rd. with new 2 lane bridge. Nexus 614	Programmed	Carryover
Chico	Capacity Increasing	From Little Chico Creek to E. 20th Street. Construct new 2 lane street and bridge at Little Chico Creek. Class 2 bike ped improvements identified separately. Nexus 615	Planned	Carryover
Chico	Capacity Increasing	From Hegan Lane to Park Ave. Widen road from 2 lanes to 4 lanes with a median. Nexus 617	Planned	Carryover
Chico	Maintenance, Operations, and Safety	From SR 99 to Bruce Rd. Corridor enhancements. Nexus 618	Planned	Carryover
Chico	Maintenance, Operations, and Safety	New Traffic Signal. Nexus 620	Planned	Carryover
Chico	Maintenance, Operations, and Safety	Turn lane capacity expansion, storage length expansion, channelization improvements, pedestrian safety due to increased traffic volumes. Nexus 621	Planned	Carryover
Chico	Maintenance, Operations, and Safety	Intersection capacity and queuing storage enhancements consistent with adjacent interchange improvements. Nexus 622	Planned	Carryover
Chico	Maintenance, Operations, and Safety	Turn lane capacity expansion, storage length expansion, channelization improvements, pedestrian safety due to increased traffic volumes. Nexus 624	Planned	Carryover
Chico	Maintenance, Operations, and Safety	Turn lane capacity expansion, storage length expansion, channelization improvements, pedestrian safety due to increased traffic volumes. Nexus 625	Planned	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Chico	Maintenance, Operations, and Safety	New Traffic Signal. Nexus 626	Planned	Carryover
Chico	Maintenance, Operations, and Safety	New Traffic Signal. Nexus 627	Planned	Carryover
Chico	Maintenance, Operations, and Safety	New Traffic Signal. Nexus 628	Planned	Carryover
Chico	Maintenance, Operations, and Safety	Roundabout (within existing ROW). Nexus 631	Planned	Carryover
Chico	Maintenance, Operations, and Safety	Turn lane capacity expansion, storage length expansion, channelization improvements, pedestrian safety due to increased traffic volumes. Nexus 632	Planned	Carryover
Chico	Maintenance, Operations, and Safety	Turn lane capacity expansion, storage length expansion, channelization improvements, pedestrian safety due to increased traffic volumes. Nexus 633	Planned	Carryover
Chico	Maintenance, Operations, and Safety	New Traffic Signal (Bike Trail). Nexus 634	Planned	Carryover
Chico	Maintenance, Operations, and Safety	2-Lane Roundabout. Nexus 636	Planned	Carryover
Chico	Maintenance, Operations, and Safety	operational flow improvements (traffic signals or roundabouts). Nexus 640	Planned	Carryover
Chico	Maintenance, Operations, and Safety	operational flow improvements (traffic signals or roundabouts). Nexus 617-02	Planned	Carryover
Chico	Capacity Increasing	From El Monte to Bruce Rd. Widen from 2 to 4 lanes. Nexus 706	Planned	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Chico	Capacity Increasing	From Bruce Rd to Yosemite. Widen from 2 to 4 lanes with signal at Yosemite. Nexus 707	Planned	Carryover
Chico	Capacity Increasing	Widen overpass structure and ramps, construct dual lane roundabouts. Nexus 710	Planned	Carryover
Chico	Capacity Increasing	Construct Southbound direct on-ramp. Nexus 711	Planned	Carryover
Chico	Capacity Increasing	Widen MLK Blvd (2 to 4 lanes) from Park Ave to E. 20th St.	Planned	Carryover
Chico	Maintenance, Operations, and Safety	Operational and safety improvements to the Heglan Business Park District (intersections of Park Avenue and Midway, Park Avenue and Fair Street, Hegan Lane and Midway, and Hegan Lane and Otterson Drive). 20200000226	Planned	Carryover
Chico	Capacity Changing	On Fair Street between E. 20th Street and E. Park Ave., reduce lanes from 4 lanes to 2 lanes with center turn lane.	Planned	New
Chico	Bicycle & Pedestrian	On Fair Street between E. 20th Street and E. Park Ave., add complete streets elements such as class 2 bike lanes on both sides with ADA curb ramps and sidewalks	Planned	New
Chico	Maintenance, Operations, and Safety	Convert the existing intersection of the State Route 99 southbound off- and on-ramps at Eaton Road into one four-leg, multi-lane roundabout.	Programmed	New
Gridley	Bicycle & Pedestrian	Install ADA curb ramps and detectable warning surfaces, close sidewalk gaps, and striping crosswalks along Sycamore, Magnolia, Indiana, and Vermont streets in the central blocks of Gridley. 20200000215	Programmed	Carryover
Gridley	Bicycle & Pedestrian	From Idaho St to Vermont St. New Class 2 bike facilities (0.42 miles)	Planned	Carryover
Gridley	Bicycle & Pedestrian	From Jackson St to SR99. New Class 2 bike facilities (0.25 miles)	Planned	Carryover
Oroville	Bicycle & Pedestrian	between Oroville Dam Boulevard East and the railroad bridge just past Orange Avenue. Construct new bike/ped facilities & ADA treatment	Programmed	New
Oroville	Bicycle & Pedestrian	from the Montgomery Street Roundabout to the Thermalito Power Canal. Construct new bike/ped facilities, ADA treatment, gap closures.	Planned	New
Oroville	Bicycle & Pedestrian	From just south of railroad bridge near Orange Street to Roundabout. Construct new Class 1 or 4 bike/ped path	Planned	New

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Oroville	Bicycle & Pedestrian	Class II along Nelson Ave and 2nd St consistent with City of Oroville AHSC Application (24/25)	Planned	New
Oroville	Maintenance, Operations, and Safety	Operational and safety improvements including a new roundabout, bike / ped / ADA improvements at intersections of Orange, Oroville Dam Blvd East and Acacia	Planned	New
Paradise	Bicycle & Pedestrian	Oliver Road between Skyway and Bille Road, Bille Road between Oliver Road and Bille Park. Construct a grade separated, Class I, bike-ped facility along the west side of Oliver Road and north side of Bille Road within the project limits. 20200000221	Programmed	Carryover
Paradise	Bicycle & Pedestrian	Neal Road between Town Limits and Skyway (1.62 miles). Along Neal Road, construct a grade separated, Class I, bike-ped facility along the west side of Neal Road within the project limits. Connects to existing the 5-mile Class I facility at the Neal/Skyway intersection. 20200000220	Programmed	Carryover
Paradise	Bicycle & Pedestrian	Phase 1 closes gap to 4 north-south roadways which serve disconnected residential areas with new Class 1 bike path serving long dead-end streets including South Libby, Edgewood and Sawmill Roads. Project includes environmental for 5 mile section between Pentz Road and Skyway. Roadway elements of Roe Rd identified as separate project. 20200000235	Programmed	New
Paradise	Bicycle & Pedestrian	Phase 2 extends new Roe Rd from South Libby to SR 191/ Clark Rd. with a 3 lane facility with a new Class 1 bike path. Roadway elements of Roe Rd identified as separate project.	Programmed	New
Paradise	Bicycle & Pedestrian	Phase 3 extends new Roe Rd from SR 191/Clark Rd to Scottwood Rd. with a 3 lane facility with a new Class 1 bike path. Roadway elements of Roe Rd identified as separate project.	Planned	New
Paradise	Bicycle & Pedestrian	Phase 4 extends new Roe Rd from Neal Rd to the Skyway with a 3 lane facility with a new Class 1 bike path. Roadway elements of Roe Rd identified as separate project.	Planned	New
Paradise	Bicycle & Pedestrian	Phase 5 reconstructs existing Roe Rd from Neal Rd to Scottwood from an existing 2 lane road to a new 3 lane facility with a new Class 1 bike path. Roadway elements of Roe Rd identified as separate project.	Planned	New
Paradise	Bicycle & Pedestrian	Pentz Road between Pearson Rd and Bille Road (1.63 miles), Pentz Road between Wagstaff Road and Skyway (1.56 miles).Construct a grade separated, Class I, bike-ped facility along the west side of Pentz Road within the project limits. This project will tie into funded improvements between Bille Road and Wagstaff Road, 20200000219	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Bille Road & Sawmill Road. One of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-1	Programmed	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Paradise	Maintenance, Operations, and Safety	Buschmann Road & Foster Road. Three of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-3	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Scottwood Road & Buschmann Road. Five of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-5	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Pentz Road & Skyway. Six of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Pentz Road & Stearns Road. Seven of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-7	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Neal Road & Circlewood Drive. Eight of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-8	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Neal Road & Grinding Rock Road. Nine of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-9	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Neal Road & Roe Road. Ten of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-10	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Neal Road & Starlight Court. Eleven of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-11	Programmed	Carryover

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Paradise	Maintenance, Operations, and Safety	Neal Road & Wayland Road. Twelve of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-12	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Pearson Road & Middle Libby Road. Thirteen of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-13	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Roe Road & Foster Road. Fourteen of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-14	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Skyway & Rocky Lane. Fifteen of sixteen stop-controlled intersections at various locations. Work: Systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-15	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Twin Oaks Drive & Wagstaff Road. Sixteen of sixteen stop-controlled intersections at various locations. Work: Systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-16	Programmed	Carryover
Paradise	Capacity Increasing	Phase 1 closes gap to 4 north-south roadways which serve disconnected residential areas with new roadway links serving long dead-end streets including South Libby, Edgewood and Sawmill Roads. Project includes environmental for 5 mile section between Pentz Road and Skyway. New 3 lane facility. Bike/Ped improvements identified separately.20200000235	Programmed	New
Paradise	Capacity Increasing	Phase 2 extends new Roe Rd from South Libby to SR 191/ Clark Rd. with a 3 lane facility. Bike and Ped improvements identified separately.	Programmed	New
Paradise	Capacity Increasing	Phase 3 extends new Roe Rd from SR 191/Clark Rd to Scottwood Rd. with a 3 lane facility. Bike and Ped Improvements identified separately.	Planned	New
Paradise	Capacity Increasing	Phase 4 extends new Roe Rd from Neal Rd to the Skyway with a 3 lane facility.. Bike and Ped Improvements identified separately.	Planned	New
Paradise	Maintenance, Operations, and Safety	Phase 5 reconstructs existing Roe Rd from Neal Rd to Scottwood from an existing 2 lane road to a new 3 lane facility (adding left turn lane). Bike and ped improvements identified separately.	Planned	New

Implementing Agency	Project type	Project Description	Project Type	Included in 2020 RTP/SCS[1]
Paradise	Maintenance, Operations, and Safety	The Skyway/Pentz Intersection Improvements project will construct additional turn lanes and a traffic signal system or a roundabout at the existing narrow, Two-Way Stop Controlled Skyway/Pentz intersection.	Programmed	New
Paradise	Bicycle & Pedestrian	The Skyway Link/Skyway Connectivity Project will construct five segments of sidewalk infill totaling 4,255 linear feet, 20 new ADA ramps, and stripe 3,165 linear feet of on-street bicycle lanes between Wagstaff Road and Bille Road.	Programmed	Carryover
Paradise	Maintenance, Operations, and Safety	Black Olive Drive & Foster Road. Two of sixteen stop-controlled intersections at various locations. Scope of Work is to systemically improve minor street approaches with a combination of splitter islands, additional intersection warning/regulatory signs, improved pavement markings, and improved sight triangles. H9-03-012. 20200000070-2019-6-2	Programmed	Carryover

2.6 Required Approvals

Approval of the RTP/SCS is at the discretion of the BCAG Board of Directors. Additional environmental review will be conducted by the responsible lead agency prior to implementation of individual projects contained within the 2024 RTP/SCS. Lead agencies may include the following:

- California Department of Transportation (Caltrans);
- California Transportation Commission (CTC);
- California Public Utilities Commission's Rail Crossings Engineering Section (RCES);
- Cities of Chico, Oroville, Biggs, Gridley and Paradise;
- County of Butte; and
- Butte Regional Transit and local transit providers and airport operators.

The relationship of this SEIR to future environmental review of individual transportation projects is further discussed in Section 1.0, *Introduction*.

2.7 Relationship with Other Plans and Programs

The 2024 RTP/SCS provides a sound basis for the allocation of state and federal transportation funds for transportation projects over the subsequent 20 years. The 2024 RTP/SCS follows guidelines established by the CTC to:

- Describe the transportation issues and needs facing the county;
- Identify goals and policies for how BCAG will meet those needs;
- Identify the amount of money that will be available for identified projects; and
- Include a list of prioritized transportation projects to serve the region's long-term needs, consistent with the funds allocated, while considering environmental impacts and planning for future land use.

The 2024 RTP/SCS has been evaluated for consistency with the goals, policies and objectives currently being implemented by municipal and county planning agencies within Butte County. The 2024 RTP/SCS would be implemented with other existing BCAG programs designed to improve transit access, bicycle and pedestrian facilities and reduce overall vehicle trips.

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3 Environmental Setting

This section provides a general overview of the environmental setting for the proposed 2024 RTP/SCS. A similar discussion of the Environmental Setting was discussed previously in the certified 2016 EIR and the 2020 SEIR, which are included here for reference. More detailed descriptions of the environmental setting for each environmental issue area evaluated in this SEIR can be found in Section 4, *Environmental Impact Analysis*.

3.1 Regional Setting

Butte County lies in north central California at the northeastern end of the Sacramento Valley, approximately 150 miles northeast of San Francisco and 70 miles north of Sacramento. State Routes 70 and 99, which extend in a north-south direction through the County, define the principal transportation corridors connecting the County to the region. State Routes 32 and 162 provide sub-regional connections to areas to the west of the County and to Interstate 5.

The County contains five incorporated cities: Chico, Oroville, Gridley, Biggs, and the Town of Paradise, and several unincorporated rural communities. The County is home to five Native American Tribes including the Mechoopda Maidu Tribe of the Chico Rancheria, Enterprise Rancheria, Berry Creek Rancheria, Mooretown Rancheria and the KonKow Valley Band of Maidu Indians. Approximately 70 tribal members live on the Chico Rancheria located approximately 3.5 miles south of Chico. The U.S. Forest Service is a major landowner in Butte County with holdings in Plumas National Forest (81,972 acres) and Lassen National Forest (49,240 acres). The U.S. Bureau of Land Management owns 18,960 acres, consisting of scattered foothill lands. Combined, these two federal agencies own and control 12.3 percent of the land area in Butte County.

Butte County covers an area of approximately 1,670 square miles and can be divided into three general topographical areas: a valley area, a foothill region east of the valley area, and a mountain region east of the foothills. These topographic areas comprise approximately 46 percent, 23 percent, and 31 percent, respectively, of the County's land. Butte County receives water via the Feather River and the Sacramento River. The County in general is drained by the Feather River, Butte Creek, and Chico Creek Watersheds. Part of the County's western border is formed by the Sacramento River.

Butte County has rich fertile valley soil, rolling hills, volcanic peaks and mesas and canyons carved by streams and rivers and is a diverse 1,068,000 acres. Its highest point is Humboldt Peak at 7,870 feet, while the lowest point is about 90 feet above sea level. Large portions of this rural area are preserved unaltered in the nearly 60,000 acres of parkland and wildlife preserves within the county. The valley remains a vital wintering site for 60 percent of the waterfowl that migrate through the Pacific Flyway. Ducks, geese, swans and other birds are present from November through March. From mid-February to mid-March, Butte County's countryside of almond, prune, kiwi, pear and apple orchards blossom, followed by a wildflower bloom that occurs throughout the area from March to June (Butte County Hazard Mitigation Plan 2019).

3.2 Regional Transportation System

Butte County's transportation network is served by highway, rail, aviation, public transportation, and facilities that support bicycle and pedestrian circulation modes. The safe and efficient transport of people and goods within the County is of crucial importance to the well-being of residents and the economic viability of the County; and thus, is the primary focus of the 2024 RTP/SCS.

Butte County has six state highways that serve as regional highways, State Route (SR) 99, 70, 32, 149, 162, and 191. The highway system in the County also includes federal and state interchanges, County and City-maintained arterial and collector roadways, and local streets within each of the five incorporated cities and town and the unincorporated area.

The Butte County region transit service is primarily provided by Butte Regional Transit (B-Line). B-Line provides both fixed route and paratransit services to Chico, Oroville, Paradise, Gridley, Biggs, and the unincorporated County. B-Line operates four routes for inter-city transportation between Chico, Paradise, Oroville, Paradise, Magalia and the Gridley-Biggs area. One line runs between Paradise, Magalia, and Chico, a second between Oroville and Chico, a third between Oroville and Gridley-Biggs, and a fourth between Chico and Gridley-Biggs. The current bus fleet consists of thirty-five fixed-route buses: twenty-nine diesel buses, eleven 35-foot diesel, eighteen 40-foot diesel, and six 32-foot diesel buses).. All vehicles are equipped with wheelchair lifts or low-floor ramps (BCAG B-Line Routing Study 2024). Transit Route 40/41 provides nine round trips daily connecting Chico, Paradise, and Magalia; Route 20 provides twelve round trips daily connecting Chico and Oroville; Route 30 provides three round trips daily connecting Oroville, Palermo, Gridley, and Biggs; and Route 32 provides two round-trips daily connecting Biggs, Gridley, and Chico. Transit service is operated between 5:50 a.m. and 8:00 p.m. Monday through Friday, with weekend service between 7:50 a.m. and 6:03 p.m. (BCAG B-Line Schedules & System Maps 2024, BCAG 2024).

B-Line operates four routes in Oroville serving the City of Oroville, the Butte County Administrative Complex, and the Oroville Transit Center. While service is primarily within the Oroville City limits, a portion of Thermalito, Kelly Ridge, and South Oroville are also served. Operating hours are from 6:12 a.m. to 7:30 p.m. Monday through Friday, except for major holidays.

Neighboring Glenn County (Glenn Ride) provides six trips per day between Willows and Chico on weekdays and three trips per day on Saturdays. There is no service on Sundays (Glenn County 2023).

Railroad operations through Butte County consist of two north/south lines of the Union Pacific railroad which run through the County. The western leg of the railroad runs through the cities of Gridley, Biggs, and Chico parallel to the west side of SR 99 and is referred to as the "Valley Line." The eastern leg of the railroad runs generally parallel to the east and west sides of the Feather River, through the City of Oroville before heading through the Feather River Canyon (Butte County General Plan 2023).

The lines are used primarily for the movement of freight. In addition, the Amtrak Coast Starlight passenger train operates twice per day on the west line. The Coast Starlight service provides passenger train runs between Seattle and Los Angeles and stops in Chico at 1:37 am (northbound) and 4:12 a.m. (southbound) daily.

There are two publicly owned public-use airports, Chico Municipal Airport and Oroville Municipal Airport; two privately owned public-use airports, Paradise Skypark Airport and Ranchaero Airport; three privately owned special-use airports, Butte Creek Hog Ranch Airport, Jones Airport, and Richvale Airport; one publicly owned seaplane landing site on Lake Oroville; two privately owned

private-use heliports at Enloe Hospital and Oroville Hospital; and one publicly owned private-use airport for the Butte County Sheriff's Department. In addition, the County contains several agricultural and private-use airports. These varieties of aviation facilities are located throughout Butte County (Butte County General Plan 2023).

3.3 Cumulative Projects Setting

3.3.1 CEQA Requirements

According to the *CEQA Guidelines* Section 15130(a)(1), "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the environmental impact report (EIR) together with other projects causing related impacts." In addition, an EIR must discuss cumulative impacts if the incremental effect of a project, combined with the effects of other projects, is "cumulatively considerable" (Section 15130[a]). Such incremental effects are to be "viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (Section 15164[b][1]). Together, these projects comprise the cumulative scenario which forms the basis of the cumulative impact analysis. A cumulative impact analysis should highlight past actions that are closely related (either in time or location) to the project being considered, catalogue past projects, and discuss how past projects have harmed the environment, and discuss past actions, even if they were undertaken by another agency or another person.

Both the severity of impacts and the likelihood of their occurrence are to be reflected in the discussion, "but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion of cumulative impacts shall be guided by standards of practicality and reasonableness and shall focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact" (Section 15130[b]). However, the analysis must be sufficient in detail to be useful to decision makers in deciding whether, or how, to alter the program to lessen cumulative impacts.

Section 15130 of the *CEQA Guidelines* prescribes two methods for analyzing cumulative impacts: (1) use of a list of past, present, and reasonably anticipated future projects producing related or cumulative impacts; or (2) use of a summary of projections contained in an adopted general plan or related planning document. As described in Section 1.5, *Baseline and Approach for Impact Analysis*, this document is a Program SEIR that analyzes the effects of buildout of the 2024 RTP/SCS. The proposed 2024 RTP/SCS considers the past, present, and future projects described in method 1 above and proposed transportation projects designed to meet the 2024 RTP/SCS goals and current and projected future transportation infrastructure needs of the County. The project also constitutes the cumulative scenario described in method 2 as it evaluates growth and development throughout the Butte County region (including incorporated and unincorporated communities) through the year 2045. Therefore, the cumulative effects of the 2024 RTP/SCS from future transportation system improvements and land use projects in the region are included in the analysis of the proposed 2024 RTP/SCS impacts. The analysis of project impacts contained in this SEIR will form the basis for the cumulative analysis contained in any subsequent environmental documentation for specific projects proposed under the 2024 RTP/SCS.

3.3.2 Growth Projections in the Region

The RTP/SCS covers a 21-year period from 2024 to 2045 and is an update of the 2020 RTP/SCS. BCAG does not propose any land use changes in the 2024 RTP/SCS, but rather the land use patterns envisioned by the 2024 RTP/SCS are based on the General Plan land use designations of the local agencies (the incorporated cities and the county). The forecasted allocations in the RTP are consistent with growth assumptions (e.g., location, density, and intensity of use) utilized in existing general plans or other local adopted plans, however, it does not utilize all available capacity in those plans.

In comparison to the regional forecast prepared by BCAG in 2021, for the Post Camp Fire Study, the 2022 forecasts show a marginal change (-0.12 percent) in the population's compound annual growth for the period following the Camp Fire[1]. This change is based on new projections developed by the Department of Finance and updated estimates of the current population. One significant change, since the Post Camp Fire Study, is the decrease in base year population. The 2021 forecasts included a base year 2020 population of 210,291 persons. The 2022 DOF forecasts estimate the year 2022 population of Butte County to be 201,608. This is likely due to several factors including the Camp Fire, North Complex Fire, and declining enrollment at California State University, Chico. As observed in BCAG's past forecast, the City of Chico is expected to see the greatest growth in population and housing units, followed by the unincorporated areas of Butte County, the Town of Paradise, and City of Oroville. Employment has fallen behind forecasts prepared in 2021 with a job to housing unit ratio of 0.84 achieved for 2022, compared to the 0.88 - 0.92 projected. However, the jobs rate has been increasing since the height of the COVID-19 pandemic (BCAG 2023).

A full description of population, housing, and employment trends in the BCAG region are contained in Section 4.8, *Population and Housing*.

The transportation projects identified in the 2024 RTP/SCS (as listed in Table 2-1 of this SEIR), provide the framework for growth within the region and the cumulative impact analysis approach discussed above.

[1] The Post Camp Fire Study showed a compound annual growth rate of 1.05 percent for the 2020-2045 period.

4 Environmental Impact Analysis

This section discusses the possible environmental effects of the proposed project for the specific issue areas that were identified as having the potential to experience significant impacts. As a supplemental EIR, this report analyzes the same potentially significant impact areas as the certified EIR (2016) issued by BCAG for the 2016 RTP/SCS, as supplemented by the 2020 RTP/SCS SEIR. A "significant effect" is defined by the *CEQA Guidelines* Section 15382 as:

> a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment but may be considered in determining whether the physical change is significant.

The following issue areas were identified as having potentially significant impacts in the 2020 RTP/SCS and are evaluated in this section:

- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Noise
- Population and Housing
- Transportation

In addition to the issue areas listed above, the following environmental issue areas not included in the 2016 RTP/SCS are evaluated in this SEIR: Energy, Tribal Cultural Resources, Wildfire. These environmental issue areas have been added to the CEQA checklist since completion of the RTP/SCS EIR in 2016. The following issue areas were determined in the 2016 RTP/SCS to have no impacts, less than significant impacts, or less than significant impacts with mitigation described in the 2016 EIR, and are evaluated in the SEIR in Section 4.11, *Other Environmental Issue Areas Analyzed*:

- Aesthetics
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Public Services
- Recreation
- Utilities and Service Systems

The assessment of each issue area begins with a discussion of the environmental setting related to the issue, which is followed by the impact analysis. In the impact analysis, the first subsection identifies the methodologies used and the "significance thresholds," which are those criteria adopted by BCAG and other agencies, universally recognized, or developed specifically for this analysis to determine whether potential effects are significant. The next subsection describes each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation. Each effect under consideration for an issue area is separately listed in bold text with the discussion of the effect and its significance. Each bolded impact statement also contains a statement of the significance determination for the environmental impact as follows:

Significant and Unavoidable. An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per Section 15093 of the *CEQA Guidelines*.

Less than Significant with Mitigation Incorporated. An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under Section 15091 of the *CEQA Guidelines*.

Less than Significant. An impact that may be adverse but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.

No Impact. The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Following each environmental impact discussion is a list of mitigation measures (if required) and the residual effects or level of significance remaining after implementation of the measure(s). In cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed and evaluated as a secondary impact. The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the proposed project in conjunction with other planned and pending developments in the area listed in Section 3.0, *Environmental Setting*.

The Executive Summary of this SEIR summarizes all impacts and mitigation measures that apply to the 2024 RTP/SCS.

4.1 Agricultural Resources

This section summarizes the setting for agricultural and forestry resources, including agricultural lands, timber land, and forest land; and analyzes the impacts of the project to agriculture and forestry resources resulting from implementation of the 2024 RTP/SCS.

4.1.1 Setting

a. Regional Setting

Butte County can be divided into three agricultural regions: the valley, the foothills and the timber lands. The most intensive agriculture is located in the valley region, which has rich alluvial soils. The foothill region consists primarily of grazing lands, with very limited crop production. Finally, the timber lands consist of timber production and recreation.

According to the 2022 Butte County Crop Report, total plant crop acreage in 2022 was 400,410 acres. This farmland consists of 291,529 acres of field crops, 100,743 acres of fruit and nut crops, 7,025 acres of seed crops, and 843 acres of vegetable crops (Butte County Agricultural Commissioner 2023).

Estimated gross value of agricultural production in Butte County for 2022 totaled approximately $692 million, which represented an increase of approximately $82 million from the 2021 gross value of $609 million. Butte County's 10-year average is approximately $709 million. Table 4.1-1 lists the top agricultural commodities in Butte County for 2022.

Table 4.1-1 2022 Butte County Crop Values

Crop	2014 Value
Rice	$324,003,490
Almonds	$97,035,000
Walnuts	$64,420,800
Prunes	$34,770,000
Rice Seed	$21,839,836
Nursery Stock	$18,012,006
Apiary, Pollination	$15,453,770
Almond Hulls	$12,825,750
Cattles and Calves	$11,315,000
Field Crops, Misc.	$9,860,700
Pistachios	$8,274,560
Peaches	$8,196,240
Harvested Timber	$4,483,162
Apiary, Other Products	$3,709,157
Fruit and Nut, Misc.	$3,489,652
Kiwifruit	$3,004,540
Pasture, Other	$2,850,000
Beans, Dry Edible	$2,047,500

Crop	2014 Value
Livestock, Misc.	$1,950,000
Pasture, Irrigated	$1,650,000
Olive, Oil	$1,648,650
Seed, Misc.	$1,374,620
Citrus	$1,310,100
Vegetables	$1,286,858
Milk, Market, Manufacturing	$1,261,520

Source: 2022 Butte County Agricultural Crop Report

Regional Conversion of Farmland

Conversion of farmland is the loss of farmland due to development or land use changes that do not support agricultural production. The California Department of Conservation (DOC) has developed a classification system to categorize the quality of agricultural land resources and has implemented a Farmland Mapping and Monitoring Program (FMMP). As part of the FMMP, maps are updated biennially to provide land use conversion information for decision-makers to use when planning for the present and future of California's agricultural land resources.

Through the FMMP, the DOC identified that prime farmland accounted for approximately 18 percent of the County in 2020. Additionally, farmland of statewide importance accounted for approximately 2 percent, unique farmland accounted for another 2 percent, and grazing land accounted for roughly 37 percent of the County (California Department of Conservation, 2020). All together important farmlands and grazing land accounted for 637,298, or approximately 59 percent, of Butte County in 2020. The types and acreages of agricultural land uses as well as the changes in acreage between 2018 and 2020 are shown in Table 4.1-2.

Table 4.1-2 Butte County Farmlands Summary and Change by Land Use Category

Land Use Category	Total Acreage Inventoried 2018	Total Acreage Inventoried 2020	2018-20 Acres Lost (-)	2018-20 Acres Gained (+)	2018-20 Total Acreage Changed	2018-20 Net Acreage Changed
Prime Farmland	192,712	192,775	430	493	923	63
Farmland of Statewide Importance	22,396	22,894	76	574	650	498
Unique Farmland	23,762	24,205	80	523	603	443
Farmland of Local Importance	0	0	0	0	0	0
Important Farmland Subtotal	238,870	239,874	586	1,590	2,176	1,004
Grazing Land	398,763	397,424	1,814	475	2,289	-1,339
Agricultural Land Subtotal	637,633	637,298	2,400	2,065	4,465	-335
Urban and Built-up Land	46,652	46,961	227	536	763	309
Other Land	365,782	365,808	406	432	838	26
Water Area	23,196	23,196	8	8	16	0
Total Area Inventoried	**1,073,263**	**1,073,263**	**3,041**	**3,041**	**6,082**	**0**

Source: DOC 2020

Important Farmlands

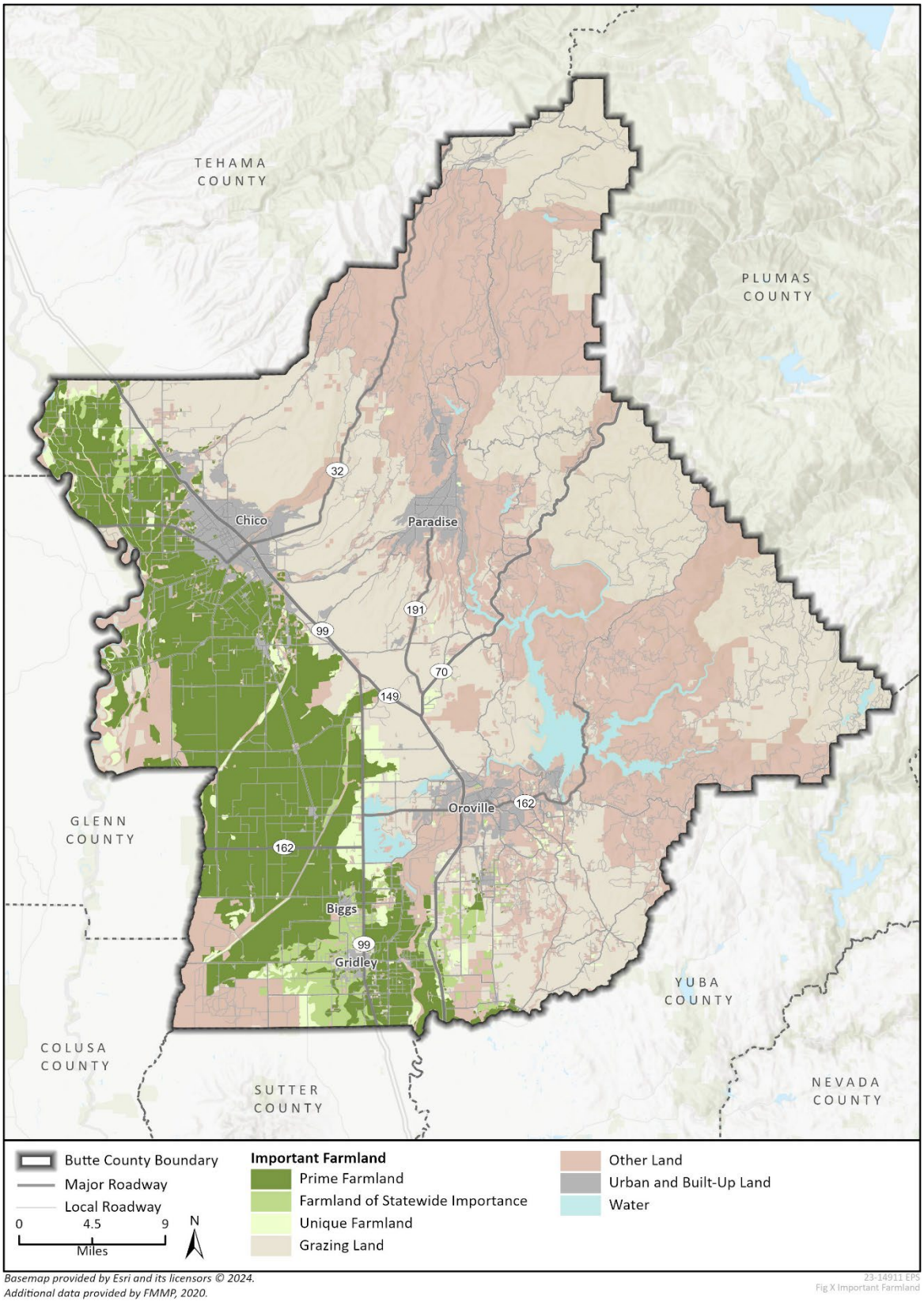
The U.S. Soil Conservation Service Important Farmlands Inventory (IFI) system is used to inventory lands with agricultural value. This system divides farmland into classes based on productive capability of the land (rather than the mere presence of ideal soil conditions). The important farmlands map identifies five agriculture-related categories including prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and grazing land. Figure 4.1-1 illustrates the locations of important farmlands in Butte County. A description of each of these categories is provided below.

- **Prime Farmland.** Prime farmland is land with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the most recent mapping date (the most recent map update for the region is 2008).
- **Farmland of Statewide Importance**. Farmland of statewide importance is land similar to prime farmland, but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.
- **Unique Farmland**. Unique farmland is land of lesser quality soils used for the production of the State's leading agricultural crops (i.e., crops of high economic value, such as oranges, olives, avocados, rice, grapes, and cut flowers). This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones of California. The land must have been cultivated at some time during the two update cycles prior to the mapping of 2008.
- **Farmland of Local Importance**. Farmland of local importance to the local agricultural economy, as determined by each County's Board of Supervisors and a local advisory committee.
- **Grazing Land**. Grazing land is land on which the existing vegetation is suited to the grazing of livestock. The minimum mapping unit for this category is 40 acres.

Also shown on the survey are urban and built-up lands, other land and water. A description of each of these categories is included below:

- **Urban and Built-Up Land**. Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land**. Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
- **Water**. Water is considered perennial water bodies with an extent of at least 40 acres.

Figure 4.1-1 Important Farmlands in the Plan Area



Williamson Act Contracts

The California Land Conservation Act of 1965, also known as the Williamson Act, enables local governments to enter into contracts with land owners for the purpose of restricting specific parcels of land to agricultural or open space use. In return, landowners receive a lower property tax rate based on agricultural production value rather than full market value. Williamson Act contracts may be non-renewed by landowners at any time, initiating a 9-year waiting period before the contract expires. Landowner's may alternatively initiate an Immediate Cancellation, which does not require the 9-year waiting period but requires meeting strict findings and the payment of penalties as set forth under the Williamson Act. Since 1967, the Williamson Act has been Butte County's primary tool for preserving agricultural land from development. The Butte County Board of Supervisors has codified regulations for administration of the County's Williamson Act program. As of 2017, 210,155 acres of land within Butte County are under a Williamson Act contract (Butte County 2024). Many of these contracts are on lands in the western portion of the county, west of State Route (SR) 99 and SR 70.

4.1.2 Regulatory Setting

Federal Regulations

Farmland Protection Policy Act, subtitle I of Title XV, Section 1539-1549

The Farmland Protection Policy Act (FPPA) is intended to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It ensures that, to the extent practicable, federal programs are compatible with state and local units of government as well as private programs and policies to protect farmland. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency. For the purpose of the FPPA, protected farmland includes Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance. Farmland subject to FPPA requirements does not have to be currently used for crop production. In fact, the land can be forest land, pastureland, cropland, or other land but does not include water bodies or land developed for urban land uses (i.e., residential, commercial, or industrial uses).

The Natural Resource Conservation Service (NRCS) administers the Farmland Protection Program. NRCS uses a land evaluation and site assessment (LESA) system to establish a farmland conversion impact rating score on proposed sites of federally funded and assisted projects. This score is used as an indicator for the project sponsor to consider alternative sites if the potential adverse impacts on the farmland exceed the recommended allowable level. The assessment is completed on form AD-1006, Farmland Conversion Impact Rating. The sponsoring agency completes the site assessment portion of the AD-1006, which assesses non-soil related criteria such as the potential for impact on the local agricultural economy if the land is converted to non-farm use and compatibility with existing agricultural use.

Farm Bill Conservation Programs

The Food, Conservation, and Energy Act of 2008 (the 2008 Farm Bill) designated funding for NRCS farmland conservation programs, including the Farm and Ranch Lands Protection Program, Wetland Reserve Program, Grassland Reserve Program, Conservation of Private Grazing Land Program, Conservation Reserve Program, Conservation Stewardship Program (CSP), Environmental Quality

Incentives Program (EQIP), Agricultural Water Enhancement Program (AWEP), and Wildlife Habitat Incentives Program.

State Regulations

Williamson Act

Preservation of agricultural, recreational and open space lands through agricultural preserve contracts between the County and property owners is a technique encouraged by the State for implementing the general plan and preserving agricultural resources. Agricultural preserve contracts are executed through procedures enabled by the California Land Conservation Act of 1965, also known as the Williamson Act (per California Government Code Sections 51200-51207). A contract may be entered into for property where the property owner agrees to restrict uses on the property to agricultural, recreational and open space uses in return for reduced property taxes. The County Agricultural Preserve Rules of Procedure require certain minimum parcel sizes and land use restrictions applicable to agricultural preserve lands under their respective contracts. To be eligible for Williamson Act designation, a minimum 100 acres of non-prime land is typically required, and that land must be used to produce an agricultural commodity that is plant or animal and is produced in California for commercial purposes.

Farmland Security Zones

In 1998 the state legislature established the Farmland Security Zone (FSZ) program. FSZs are like Williamson Act contracts, in that the intention is to protect farmland from conversion. The main difference, however, is that the FSZ must be designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. The term of the contract is a minimum of 20 years. The property owners are offered an incentive of greater property tax reductions when compared to the Williamson Act contract tax incentives; the incentives were developed to encourage conservation of Prime Farmland through FSZs. The nonrenewal and cancellation procedures are similar to those for Williamson Act contracts.

Land Evaluation and Site Assessment Model (LESA)

The California Department of Conservation has developed the California LESA model to evaluate agricultural quality of specific sites to assist in determining the significance of agricultural lands. The LESA model considers six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds.

Local Regulations

General Plans

The most comprehensive land use planning for the Plan Area is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future

development. The general plan for Butte County and for each of the cities in the county contains goals and policies concerning topics that are mandated by state law or which the jurisdiction has chosen to include. Required topics include land use, circulation, housing, conservation, open space, noise, safety, environmental justice, and in certain cases air quality. The local agency general plans also include a wide variety of goals and policies aimed at protecting agricultural resources within the County. Such goals and policies include the implementation of a countywide Right to Farm Ordinance, preservation of agricultural land, enforcement of agricultural land conversions, establishing minimum parcel size and buffers, and establishing Williamson Act contracts.

Specific and Community Plans

A city or county may also provide land use planning by developing community or specific plans for smaller, more specific areas within their jurisdiction. These more localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan. Specific and community plans are required to be consistent with the city's or county's general plan.

Butte County Administrative Procedures and Uniform Rules for Implementing the California Land Conservation (Williamson) Act

As amended by AB 1265 on October 25, 2011, Butte County implements the California Land Conservation (Williamson) Act of 1965 to promote agricultural productivity and the preservation of agricultural land and open space lands. The County's implementation of the Williamson Act provides a common set of rules and procedures that apply to the standards and categories of property eligibility, the permitted and compatible land uses and restriction on Williamson Act contract lands, procedures for creation and termination of Williamson Act contracts and procedures for compliance monitoring and enforcement.

Butte County Sustainable Agricultural Lands Conservation Strategy

On October 24, 2017, the Butte County Board of Supervisors approved the Sustainable Agricultural Lands Conservation (SALC) Strategy under Resolution 17-182. The SALC Strategy is a set of living tools and information intended to assist farmers, ranchers, and other members of the public in voluntarily conserving agricultural lands, and in implementing farming and ranching practices that help achieve the key sustainability goals of carbon sequestration, greenhouse gas emissions reductions, water conservation, and groundwater recharge. Sustainable farming and ranching practices not only benefit the environment but can benefit agricultural producers as well. There are financial incentives available to farmers who switch to sustainable practices. Under the SALC Strategy, Butte County has identified incentives and produced a library of information to connect producers to these incentive programs.

4.1.3 Impact Analysis

a. Methodology and Significance Thresholds

Pursuant to the *CEQA Guidelines*, potentially significant impacts to agriculture would result if the project would:

- Convert Prime Farmland, Unique Farmland, or 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;

- Conflict with existing zoning for agricultural use or a Williamson Act contract;
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use;

Impacts associated with forest land and timberlands were determined to be less than significant in the Initial Study prepared for the 2016 RTP/SCS, and subsequently, in the 2020 SEIR, and thus is discussed in Section 4.12, Other Environmental Issue Areas Analyzed. This SEIR augments the previously certified 2020 SEIR for the 2020 RTP/SCS and analyzes only the changes in the 2020 RTP/SCS or changes in circumstances under which the 2024 RTP/SCS projects would be implemented since certification of the previous 2020 SEIR. Therefore, for issue areas where impacts would be similar to or less than the impact level identified in the previous 2020 SEIR, no further analysis is warranted. Thus, the following thresholds will not be discussed further in this section and are instead included with other less than significant issue areas in Section 4.12, Other Environmental Issue Areas Analyzed of this SEIR document:

- 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));
- Result in the loss of forest land or conversion of forest land to non-forest use
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use.

a. Project Impacts and Mitigation Measures

Threshold 1:	Would the project convert Prime Farmland, Unique Farmland, or 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?

Impact AG-1 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS UNDER THE 2024 RTP/SCS COULD RESULT IN THE ADDITIONAL CONVERSION OF PRIME FARMLAND, UNIQUE FARMLAND, OR FARMLAND OF STATEWIDE IMPORTANCE AND LANDS UNDER WILLIAMSON ACT CONTRACT TO NON-AGRICULTURAL USES, RELATIVE TO THE 2020 RTP/SCS. IMPACTS WOULD REMAIN SIGNIFICANT AND UNAVOIDABLE.

Similar to the 2020 RTP/SCS, due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific farmland conversions for each RTP project is not possible at this time. However as discussed in the 2020 RTP/SCS EIR, proposed transportation improvement projects, such as roadway expansions and widening, could result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural uses. The 2024 RTP/SCS would add approximately 125 net new minor projects relative to the 2020 RTP/SCS. None of the modified or new projects on the 2024 RTP/SCS list would be substantially different from those on the 2020 RTP/SCS list in terms of geographical location, type of project, or size of project and would be constructed at various points within a span of 20 years. In addition, the land use scenario envisioned by the 2024 RTP/SCS is similar to that contained in the 2020 RTP/SCS and concentrates the forecasted growth in population and employment in the region in urban areas and corridors of the County. Nevertheless, projects envisioned under the 2024 RTP/SCS may require new ground disturbance on previously undisturbed soils which have the potential to be agricultural lands

classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, because the 2024 RTP/SCS includes additional projects, it would potentially result in greater impacts to agricultural and farmlands than previously analyzed in the 2020 RTP/SCS EIR.

Similar to the land use scenario included in the 2020 RTP/SCS, the 2024 RTP/SCS would place a greater emphasis of development in existing urban areas and limit expansion at community or city borders where urban development interfaces with agricultural lands. Therefore, impacts in the form of conversion of agricultural lands or Williamson Act lands would be minimal. However, impacts from individual projects would need to be addressed on a case-by-case bases. Nevertheless, because the actual magnitude of impacts from individual projects cannot be determined at this time, the overall impact to Prime Farmland and/or Williamson Act lands would be potentially significant.

Mitigation Measures

The following mitigation measures included in the 2020 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2016 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

AG-1(a) Alternative Alignment Consideration

When new roadway extensions or widenings are planned, the project sponsor shall assure that project-specific environmental reviews consider alternative alignments that reduce or avoid impacts to Prime Farmlands.

AG-1(b) Farmer Compensation

Rural roadway alignments shall follow property lines to the extent feasible, to minimize impacts to the agricultural production value of any specific property. Farmers shall 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.

AG-1(c) Important Farmland Conservation Easements

When new transportation facilities or land use projects implementing the 2024 RTP/SCS are planned in areas that contain Important Farmland (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance), the transportation project sponsor or local jurisdiction in which the project is located shall assure that project-specific environmental reviews mitigate impacts, when feasible, through requiring use of agricultural conservation easements on land of at least equal quality and size as compensation for the loss of agricultural land. Agricultural conservation easements would be implemented by directly purchasing easements or donating mitigation fees to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural conservation easements.

AG-1(d) Prime Farmland Conservation Easements

Prior to approval of 2024 RTP/SCS projects that may adversely impact Prime Farmland, the project sponsor shall, when the following mitigation measures are feasible, require that a farmland conservation easement, a farmland deed restriction, or other farmland conservation mechanism be

granted in perpetuity to the municipality in which the project is proposed, or an authorized agent thereof. The easement shall provide conservation acreage at a minimum ratio of 1:1 for direct impacts. The conservation area shall be located within Butte County in reasonable proximity to the project area.

Significance After Mitigation

Although the above measures would reduce impacts to Prime Farmland, Unique Farmland, Farmland of Statewide Importance and lands under Williamson Act contract to the degree feasible, such impacts cannot be fully mitigated due to the potential conversion to non-agricultural use. As described in the 2020 RTP/SCS EIR, impacts from individual projects will need to be addressed on a case-by-case basis; however, because impacts to individual Prime Farmland, Unique Farmland, Farmland of Statewide Importance and lands under Williamson Act contract cannot be assumed to be less than significant, agricultural impacts would remain significant and unavoidable, consistent with the findings for the 2020 RTP/SCS EIR.

b. Specific 2024 RTP/SCS Projects That May Result in Impacts

All 2024 RTP/SCS projects that require the extension or widening of a roadway in rural areas adjacent to agricultural land may result in impacts discussed in Impact AG-1. Individual projects could create significant impacts related to agricultural resources but would not necessarily do so. Additional specific analysis will need to be conducted as the individual projects are implemented in order to determine the actual magnitude of impact. Mitigation measures discussed above could apply to these specific projects for agricultural resources. RTP projects that require the addition of lanes or widening of lanes or a shoulder to an existing roadway or highway or that require construction of a new roadway, highway or bike lane and are adjacent to agricultural lands have the potential to impact agricultural resources including Prime Farmlands, Unique Farmland, Farmland of Statewide Importance and Williamson Act contract lands. All construction projects adjacent to agricultural lands have the potential to impact agricultural resources as described in Impact AG-1, beyond those discussed in the 2020 RTP/SCS EIR. The most common projects that would likely impact agricultural resources in the 2024 RTP/SCS would be the roadway widenings adjacent to agricultural land. However, this level of detail for the projects is not currently available.

4.2 Air Quality

This section analyzes the additional impacts of the 2024 RTP/SCS, relative to the 2020 RTP/SCS, upon local and regional air quality. Both temporary impacts relating to construction activity and long-term impacts associated with population growth and associated growth in vehicle traffic are discussed.

4.2.1 Setting

Local Climate and Meteorology

Air quality is affected by the rate and location of pollutant emissions and by climatic conditions that influence the movement and dispersion of pollutants. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, along with local and regional topography, mediate the relationship between air pollutant emissions and air quality.

Located within the Sacramento Valley Air Basin (SVAB), Butte County has a Mediterranean climate, which is characterized by hot, dry summers and cool, wet winters. Summer conditions in the SVAB are typically characterized by high temperatures and low humidity, with temperatures averaging from approximately 90 degrees Fahrenheit during the day and 50 degrees Fahrenheit at night. During the summer months, the prevailing winds are typically from the south. Winter conditions are characterized by occasional rainstorms interspersed with stagnant and sometimes foggy weather. The daytime average temperature is in the low 50s, and the nighttime average temperature is in the upper 30s. During winter, winds predominate from the south, but north winds frequently occur. Rainfall occurs mainly from late October to early May, with an average of 17.2 inches per year, but this amount can vary significantly each year (Butte County 2010).

Dispersion of local pollutant emissions are predominantly affected by the prevailing wind patterns and inversions that often occur in the SVAB. Within the SVAB, two types of inversions can occur. During summer months, sinking air forms a “lid” over the region and confines pollution to a shallow layer near the ground, which can contribute to photochemical smog problems. During winter nights, air near the ground cools while the air aloft remains warm, which can cause localized air pollution “hot spots” near emission sources (Butte County 2010).

Air Pollutants of Primary Concern

Primary criteria pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere. Primary criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter with 10 microns in diameter or less (PM_{10}), particulate matter with 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). Ozone (O_3) is considered a secondary criteria pollutant because it is created by atmospheric chemical and photochemical reactions between reactive organic compounds (ROC) and nitrogen oxides (NO_X). These pollutants can have adverse impacts on human health at certain levels of exposure. The following subsections describe the characteristics, sources, and health and atmospheric effects of air pollutants.

Ozone

Ozone (O_3) is a highly oxidative unstable gas produced by a photochemical reaction (triggered by sunlight) between NO_X and ROC/volatile organic compounds (VOC).[1] ROC is composed of non-methane hydrocarbons (with specific exclusions), and NO_X is composed of different chemical combinations of nitrogen and oxygen, mainly nitric oxide and NO_2. NO_X is formed during the combustion of fuels, while ROC is formed during the combustion and evaporation of organic solvents. As a highly reactive molecule, O_3 readily combines with many different atmosphere components. Consequently, high O_3 levels tend to exist only while high ROC and NO_X levels are present to sustain the O_3 formation process. Once the precursors have been depleted, O_3 levels rapidly decline. Because these reactions occur on a regional rather than local scale, O_3 is considered a regional pollutant. In addition, because O_3 requires sunlight to form, it mainly occurs in concentrations considered serious between April and October. Groups most sensitive to O_3 include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors (United States Environmental Protection Agency [USEPA] 2024a). Depending on the level of exposure, O_3 can cause coughing and a sore or scratch throat; make it more difficult to breathe deeply and vigorously and cause pain when taking a deep breath; inflame and damage the airways; make the lungs more susceptible to infection; and aggravate lung diseases such as asthma, emphysema, and chronic bronchitis.

Carbon Monoxide

Carbon monoxide (CO) is a localized pollutant found in high concentrations near its source. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic's incomplete combustion of petroleum fuels. Therefore, elevated concentrations are usually only found near areas of high traffic volumes. Other sources of CO include the incomplete combustion of petroleum fuels at power plants and fuel combustion from wood stoves and fireplaces throughout the year. When CO levels are elevated outdoors, they can be of particular concern for people with some types of heart disease. These people already have a reduced ability to get oxygenated blood to their hearts in situations where they need more oxygen than usual. As a result, they are especially vulnerable to the effects of CO when exercising or under increased stress. In these situations, short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain, also known as angina (USEPA 2024a).

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a by-product of fuel combustion. The primary sources are motor vehicles and industrial boilers, and furnaces. The principal form of NO_X produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2, commonly called NO_X. NO_2 is a reactive, oxidizing gas and an acute irritant capable of damaging cell linings in the respiratory tract. Breathing air with a high concentration of NO_2 can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases leading to respiratory symptoms (such as coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections. People with asthma, particularly children and the elderly, are generally at greater risk for

[1] California Air Resources Board (CARB) defines VOC and ROC similarly as, "any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate," with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROC and VOC are considered comparable in terms of mass emissions, and the term ROC is used in this report.

the health effects of NO_2 (USEPA 2024a). NO_2 absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of O_3/smog and acid rain.

Sulfur Dioxide

Sulfur dioxide (SO_2) is included in a group of highly reactive gases known as "oxides of sulfur." The largest sources of SO_2 emissions are from fossil fuel combustion at power plants (73 percent) and other industrial facilities (20 percent). Smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore and burning fuels with a high sulfur content by locomotives, large ships, and off-road equipment. Short-term exposures to SO_2 can harm the human respiratory system and make breathing difficult. People with asthma, particularly children, are sensitive to these effects of SO_2 (USEPA 2024a).

Particulate Matter

Suspended atmospheric PM_{10} and $PM_{2.5}$ are comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. Both PM_{10} and $PM_{2.5}$ are emitted into the atmosphere as by-products of fuel combustion and wind erosion of soil and unpaved roads. The atmosphere, through chemical reactions, can form particulate matter. The characteristics, sources, and potential health effects of PM_{10} and $PM_{2.5}$ can be very different. PM_{10} is generally associated with dust mobilized by wind and vehicles. In contrast, $PM_{2.5}$ is generally associated with combustion processes and formation in the atmosphere as a secondary pollutant through chemical reactions. PM_{10} can cause increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling. For $PM_{2.5}$, short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases (CARB 2024a).

Lead

Lead (Pb) is a metal found naturally in the environment, as well as in manufacturing products. The major sources of Pb emissions historically have been mobile and industrial. However, due to the USEPA 's regulatory efforts to remove lead from gasoline, atmospheric Pb concentrations have declined substantially over the past several decades. The most dramatic reductions in Pb emissions occurred before 1990 due to the removal of Pb from gasoline sold for most highway vehicles. Pb emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries at least partly due to national emissions standards for hazardous air pollutants (USEPA 2013). As a result of phasing out leaded gasoline, metal processing is currently the primary source of Pb emissions. The highest Pb level in the air is generally found near Pb smelters. Other stationary sources include waste incinerators, utilities, and Pb-acid battery manufacturers. Pb can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and cardiovascular system depending on exposure. Pb exposure also affects the oxygen-carrying capacity of the blood. The Pb effects most likely encountered in current populations are neurological in children. Infants and young children are susceptible to Pb exposures, contributing to behavioral problems, learning deficits, and lowered IQ (USEPA 2024a).

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TAC) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. One of the main sources of TACs in California is diesel engine exhaust that contains solid material known as diesel particulate matter (DPM). More than 90 percent of DPM is less than one micron in diameter (about 1/70th the diameter of a human hair) and thus is a subset of $PM_{2.5}$. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs (CARB 2024a). TACs are different than criteria pollutants because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., long duration) and acute (i.e., severe but of short duration) adverse effects on human health. People exposed to TACs at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects that can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (USEPA 2024b).

Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005; OEHHA 2015). Some land uses considered more sensitive to air pollution than others due to the types of population groups present or activities involved are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools/daycare centers, and hospitals.

Current Air Quality

The California Air Resources Board (CARB) and the USEPA have established ambient air quality standards for major pollutants, including O_3, CO, NO_2, SO_2, Pb, PM_{10}, and $PM_{2.5}$. Standards have been set at levels intended to be protective of public health. California standards are typically more restrictive than federal standards.

Local air districts and CARB monitor ambient air quality to ensure that air quality standards are met and, if they are not met, are required to develop strategies to meet the standards. Air quality monitoring stations measure pollutant ground-level concentrations (typically, 10 feet above ground level). Depending on whether the standards are met or exceeded, the local air basin is classified as in “attainment” or “non-attainment.” Some areas are unclassified, which means no monitoring data are available but are considered to be in attainment. Table 4.2-1 summarizes the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS) for each of these pollutants as well as the attainment status of Butte County. As shown in Table 4.2-1, Butte County is in non-attainment for the state and federal standards for ozone and the state standard for PM_{10} (BCAQMD 2024).

Table 4.2-1 Ambient Air Quality Standards and Basin Attainment Status

		California Standards		Federal Standards	
Pollutant	**Averaging Time**	**Concentration**	**Attainment Status**	**Concentration**	**Attainment Status**
Ozone	1-Hour	0.09 ppm	N-T	–	–
	8-Hour	0.070 ppm	N-T	0.070 ppm	N
Carbon Monoxide	8-Hour	9.0 ppm	A	9.0 ppm	A
	1-Hour	20.0 ppm	A	35.0 ppm	A
Nitrogen Dioxide	Annual	0.030 ppm	A	0.053 ppm	A
	1-Hour	0.18 ppm	A	0.100 ppm	A
Sulfur Dioxide	24-Hour	0.04 ppm	A	–	–
	1-Hour	0.25 ppm	A	0.075 ppm	A
PM_{10}	Annual	20 µg/m^3	A	--	–
	24-Hour	50 µg/m^3	N	150 µg/m^3	A
$PM_{2.5}$	Annual	12 µg/m^3	A	9 µg/m^3	A
	24-Hour	–	–	35 µg/m^3	A
Lead	30-Day Average	1.5 µg/m^3	A	–	–
	3-Month Average	–	–	0.15 µg/m^3	A

Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter; A = Attainment; N = Non-attainment; N-T = Nonattainment-Transitional; and U = Unclassified
Source: CARB 2024b, BCAQMD 2024

Monitoring of ambient air pollutant concentrations is conducted by CARB and the Butte County Air Quality Management District (BCAQMD). CARB has three Butte County monitoring stations. Monitoring stations are located in Chico (984 East Avenue) and Paradise (4405 Airport Road and 5921 Clark Road). Table 4.2-2 summarizes the maximum concentration of each criteria pollutants measured in the Butte County portion of the air basin in 2021, 2022, and 2023.

Table 4.2-2 Ambient Air Quality Data in Butte County

Pollutant	**2021**	**2022**	**2023**
Ozone (ppm), Worst 1-Hour	0.093	0.082	0.075
Number of days of state exceedances (>0.09 ppm)	0	0	0
Ozone (ppm), 8-Hour Average	0.078	0.068	0.070
Number of days of state exceedances (>0.07 ppm)	10	0	0
Number of days of federal exceedances (>0.07 ppm)	9	0	0
Nitrogen Dioxide (ppb) – Worst Hour	31.8	29.6	31.4
Number of days above state standard (>180 ppb)	0	0	0
Particulate Matter <10 microns, mg/m^3, Worst 24 Hours[1]	218.2	108.7	84.6
Number of days above state standard (>50 mg/m^3)	47	17	16
Number of days above federal standard (>150 mg/m^3)	1	0	0
Particulate Matter <2.5 microns, mg/m^3, Worst 24 Hours	102.7	42.8	35.4
Number of days above federal standard (>35 mg/m^3)	13	2	0

[1] This data is not available by County, but is available by Air Basin. The values presented here are for the entire SVAB.
Notes: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; data is for Butte County as a whole
Source: CARB 2024c

4.2.2 Regulatory Setting

Federal

The federal Clean Air Act (CAA) governs air quality in the United States. The USEPA is responsible for enforcing the federal CAA. The USEPA is also responsible for establishing the NAAQS, which are a requirement under the 1970 CAA and subsequent amendments. The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside state waters (e.g. beyond the outer continental shelf) and establishes various emission standards, including for passenger cars; however, passenger cars sold in California must meet the stricter emission standards established by CARB.

State

California Clean Air Act

The California Clean Air Act (CCAA) was enacted in 1988 (California Health and Safety Code Section 39000 et seq.). Under the CCAA, the State has developed the CAAQS, which are generally more stringent than the NAAQS. Table 4.2-3 lists the current State standards for regulated pollutants. In addition to the federal criteria pollutants, the CAAQS also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Similar to the federal CAA, the CCAA classifies specific geographic areas as either "attainment" or "non-attainment" areas for each pollutant, based on the comparison of measured data within the CAAQS.

State Implementation Plan

The SIP is a collection of documents that set forth a state's strategies for achieving the AAQS. In California, the SIP is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, and permitting), district rules, State regulations, and federal controls. CARB is the lead agency for all purposes related to the SIP under State law. Local air districts and other agencies, such as the Department of Pesticide Regulation and the Bureau of Automotive Repair, prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. The items included in the California SIP are listed in 40 Code of Federal Regulations Section 52.220.

The Northern Sacramento Valley Planning Area (NSVPA) 2021 Triennial Air Quality Attainment Plan (2021 AQAP) is the SIP for the Northern SVAB, which includes Butte County. The 2021 AQAP includes an assessment of progress towards achieving the control measure commitments in the previous Triennial Plan, a summary of the last three years of ozone data, a comparison of the expected versus actual emission reductions for each measure committed to in the previous Triennial Plan, updated control measure commitments and growth rates of population, industry, and vehicle related emissions (Sacramento Valley Air Quality Engineering and Enforcement Professionals [SVAQEEP] 2021).

California Code of Regulations

The California Code of Regulations (CCR) is the official compilation and publication of the regulations adopted, amended or repealed by State agencies pursuant to the Administrative Procedure Act. They are compiled into titles and organized into divisions containing the regulations of State agencies. The following regulations are applicable to the proposed project:

- **Engine Idling.** In accordance with Section 2485 of Title 13 of the CCR the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.
- **Emission Standards.** In accordance with Section 93115 of Title 17 of the CCR, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

Local

BCAQMD is responsible for assuring that the federal and state ambient air quality standards are attained and maintained in the Butte County portion of the SVAB. The agency is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources, inspecting stationary sources, evaluating potential health risks from air pollutants, and adopting air pollution control measures.

Air Quality Management

The federal CAA Amendments of 1990 set a schedule for the attainment of the NAAQS. States are required to prepare a State Implementation Plan (SIP) to develop strategies to bring about attainment of the standards. In addition, the CCAA requires areas that exceed the CAAQS to plan for the eventual attainment of the state standards. Air districts in the northern SVAB (encompassing Shasta, Tehama, Glen, Colusa, Butte, and Feather River air districts), prepared and adopted a uniform Air Quality Attainment Plan (AQAP) for the purpose of achieving and maintaining healthful air quality throughout the northern portion of the SVAB. In December 2021, BCAQMD adopted the 2021 AQAP. The 2021 AQAP assesses the progress made in implementing the previous triennial update and proposed modifications to the strategies necessary to attain the CAAQS by the earliest practicable date. Table 4.2-3 presents a summary of the ozone emissions inventory for the Northern SVAB taken from the 2021 Plan.

Table 4.2-3 Ozone Emissions Inventory Projections for Northern SVAB (tons/day)

	NO_X		ROG	
	2020	**2025**	**2020**	**2025**
Stationary Sources	20.9	21.2	23.7	26.0
Area-wide Sources	5.0	5.0	40.7	40.6
Mobile Sources	56.0	41.8	32.9	27.4
On-Road Motor Vehicles	27.5	18.4	9.6	7.1
Other Mobile Sources	28.6	23.4	23.2	20.3
Total Emissions	**82.0**	**68.0**	**97.2**	**94.0**

Source: Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEEP) 2021

Butte County was officially designated attainment for the national $PM_{2.5}$ standard in 2018 after meeting the standard since 2013.

4.2.3 Impact Analysis

a. Significance Thresholds

This analysis follows the guidance and methodologies recommended in the air quality emissions thresholds established by the BCAQMD and the CEQA Appendix G thresholds. Pursuant to the *CEQA Guidelines*, air quality impacts related to the proposed project would be significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- 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;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Result in other emissions (such as those leading to odors adversely affecting a substantial number of people.

The BCAQMD CEQA Air Quality Handbook (March 2024) establishes thresholds for criteria air pollutants. Table 4.2-4 summarizes the pollutant thresholds, which are separated by construction and operation-related activities.

Table 4.2-4 BCAQMD Thresholds

Pollutant	Construction	Operation
NO_X	137 lbs/day	25 lbs/day
ROG	137 lbs/day	25 lbs/day
PM_{10}	80 lbs/day	80 lbs/day

NOx = nitrous oxides, ROG = reactive organic gases; PM_{10} = particulate matter less than 10 microns in diameter, lbs/day = pounds per day

Source: BCAQMD 2024b

State and federal clean air laws require that emissions of pollutants for which federal or state ambient air quality standards are violated be reduced from current levels. In addition, as an SEIR, this analysis is intended to identify any additional impacts to air quality resulting from updates to the 2020 RTP/SCS that have not been previously addressed in the 2020 RTP/SCS EIR. Therefore, the following thresholds have been adopted by BCAG for the purpose of this analysis. The 2024 RTP/SCS would result in significant air quality impacts if it would:

- Conflict with the 2021 AQAP Update
- Increase short-term emissions relative to 2020 RTP/SCS short-term emissions
- Increase long-term emissions relative to baseline (2022) emissions
- Increase emissions of diesel toxics ($PM_{2.5}$ and NO_X) relative to baseline emissions
- Increase re-entrained dust emissions relative to baseline emissions

b. Methodology

Short-term Emissions

Emissions from construction activities represent temporary impacts that are typically short in duration, and depend on the size, phasing, and type of project. Air quality impacts can nevertheless

be acute during construction periods, resulting in significant impacts to air quality. Construction-related emissions are speculative at the RTP level because such emissions are dependent on the characteristics of individual development projects. However, because construction of projects under the 2024 RTP/SCS would generate temporary criteria pollutant emissions, primarily due to the operation of construction equipment and truck trips, a qualitative analysis is provided below.

Long-term Emissions

For this SEIR, the methodology for determining the significance of air quality impacts compares 2022 existing conditions to the 2024 RTP/SCS conditions in the year 2045. State and federal clean air laws require that emissions of pollutants for which federal or state ambient air quality standards are violated be reduced from current levels. Therefore, the project's long-term impacts to air quality are considered significant if the project would result in mobile source emissions that significantly exceed existing levels. For the 2024 RTP/SCS the pollutants of concern are ozone precursors (NO_x and ROG) and particulate matter ($PM_{2.5}$ and PM_{10}), as these are the primary pollutants associated with vehicle transportation.

Projected air emissions from mobile sources were calculated using EMFAC 2021 model with data for vehicle miles traveled (VMT) from the RTP/SCS traffic analysis completed by Fehr and Peers (2024), which calculated the various scenarios using the County's Traffic Demand Model (as further described in Section 4.9, *Transportation and Circulation*). Vehicle trips, VMT, and VMT by speed class distributions were provided for the 2022 existing conditions and 2045 projections with and without the project. The VMT by speed bin data was then entered into the EMFAC2021 model for analysis. The EMFAC emissions factors are established by CARB and accommodate certain mobility assumptions (e.g., vehicle speed, delay times, average trip lengths, and total travel time). Projected vehicle emissions for the year 2045 under the 2024 RTP/SCS were compared to 2022 existing conditions. If county-wide ROG, NO_x, $PM_{2.5}$ or PM_{10} emissions generated by the 2024 RTP/SCS would not exceed the 2022 baseline, impacts to long-term air quality would not be considered significant.

c. Project Impacts and Mitigation Measures

Implementation of the 2024 RTP/SCS could create both short-term and long-term impacts to air quality. Short-term air quality impacts would be generated during construction of the capital improvements listed in the 2024 RTP/SCS as well as future development facilitated by the 2024 RTP/SCS. Long-term emissions would be generated indirectly by the on-road vehicles that would utilize the capital improvements and proposed land uses.

Threshold 1:	Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact AQ-1 THE 2024 RTP/SCS WOULD REDUCE EMISSIONS OF OZONE PRECURSORS CONSISTENT WITH THE GOALS OF THE 2021 TRIENNIAL AQAP. IT WOULD NOT CONFLICT WITH THE 2021 AQAP UPDATE. THERE WOULD BE NO NEW IMPACT RELATIVE TO THE 2024 RTP/SCS. IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT.

Policies and projects facilitated by the 2024 RTP/SCS are projected to reduce emissions of ozone precursors below the 2022 baseline as shown in Table 4.2-5 , consistent with the goals of the 2021 AQAP Update.

Table 4.2-5 Regional Air Pollutant Emissions

Scenario	VMT	$PM_{2.5}$ (tons/day)	PM_{10} (tons/day)	NOx (tons/day)	ROG (tons/day)
2022 Baseline	4,620,750	0.08	0.178	2.53	1.48
2045 Project	5,234,482	0.06	0.15	0.76	0.57

Notes: The on-road mobile source criteria pollutant emissions estimates for the 2024 RTP/SCS were calculated using CARB's EMFAC2021 emission inventory model. VMT data were extracted from Fehr and Peers who utilized the BCAG's Traffic Demand Model (as further described in Section 4.9, *Transportation and Circulation*) and include pass-through trips from vehicles travelling through Butte County that do not have an origin or destination within the county. The decrease in air pollutant emissions in later years despite an increase in VMT is largely attributable to increasingly fuel-efficient vehicles, improving emissions control technology, and an increased share of electric vehicle adoption resulting from currently adopted State policies including the Advanced Clean Cars Program.

Source: See Appendix B for EMFAC2021 modeling results

The projected decrease in emissions of ozone precursors is due to proposed transportation improvements envisioned by the 2024 RTP/SCS, which, among other strategies, would improve alternative transportation options and reduce congestion. Reduced congestion would result in reduced regional criteria air pollutant emissions and TAC emissions from mobile sources. Therefore, the 2024 RTP/SCS would not introduce a new impact relative to the 2020 RTP/SCS. Impacts would remain less than significant.

Mitigation Measures

None required.

Threshold 2: 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?

Impact AQ-2 CONSTRUCTION OF TRANSPORTATION IMPROVEMENT PROJECTS AND THE LAND USE PATTERN ENVISIONED BY THE 2024 RTP/SCS WOULD GENERATE SHORT-TERM AIR POLLUTANT EMISSIONS. DUE TO THE INCLUSION OF A LARGER NUMBER OF PROJECTS, IMPLEMENTATION OF THE 2024 RTP/SCS WOULD POTENTIALLY RESULT IN HIGHER QUANTITIES OF SHORT-TERM AIR POLLUTANT EMISSIONS THAN IMPLEMENTATION OF THE 2020 RTP/SCS. IMPACTS WOULD REMAIN SIGNIFICANT BUT MITIGABLE.

As discussed in the 2020 RTP/SCS EIR, implementation of the 2020 RTP/SCS would result in short-term emissions from construction of transportation projects and future development envisioned under the 2020 RTP/SCS. The 2024 RTP/SCS would add over 70 net new minor projects relative to the 2020 RTP/SCS. None of the modified or new projects on the 2024 RTP/SCS list would be substantially different from those on the 2020 RTP/SCS list in terms of geographical location, type of project, or size of project and would be constructed at various points within a span of approximately 20 years. In addition, the land use scenario envisioned by the 2024 RTP/SCS is similar to that contained in the 2020 RTP/SCS and concentrates the forecasted growth in population and employment in the region in urban areas and corridors of the County. Nevertheless, because the 2024 RTP/SCS includes more projects as compared to the 2020 RTP/SCS, implementation of projects under the 2024 RTP/SCS could result in a greater amount of short-term air pollutant emissions than under the 2020 RTP/SCS. However, with incorporation of the same mitigation measures to reduce construction emissions included in the 2020 RTP/SCS, impacts would remain less than significant.

Mitigation Measures

The following mitigation measures included in the 2020 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2020 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

AQ-1

BCAG shall and sponsor agencies can and should ensure that all feasible and appropriate mitigation measures set by BCAQMD are implemented. The measures shall be noted on all construction plans, and the lead agency shall perform periodic site inspections. BCAQMD rules and regulations on construction include, but are not limited to, the following:

- Mix backfill soil with water prior to moving;
- Prevent generation of dust plumes by applying water in sufficient quantity;
- Limit vehicular traffic and disturbances on soils where possible;
- Grade each project phase separately, timed to coincide with construction phase;
- Use tarps or other suitable enclosures on haul trucks;
- Maintain effective cover over materials;
- Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes;
- Restrict vehicular access to established unpaved travel paths and limit number and size of staging area entrances and exits;
- Add or remove material from the downwind portion of the storage pile;
- Pre-water soils prior to trenching (18 inches for deep trenching activities); and
- Haul waste material immediately off-site.

Significance After Mitigation

With the implementation of Mitigation Measures AQ-1 to implement BCAQMD construction emissions reduction measures, impacts related to short-term construction emissions would remain less than significant, consistent with the findings for the 2020 RTP/SCS EIR.

Impact AQ-3 IMPLEMENTATION OF THE 2024 RTP/SCS WOULD RESULT IN AN OVERALL REDUCTION OF ON-ROAD VEHICLE EMISSIONS WHEN COMPARED TO BASELINE CONDITIONS. IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT.

As previously noted, Butte County is currently classified as being a non-attainment area for state and federal standards for ozone and the state standard for PM_{10}. Therefore, an increase in ozone precursors (NO_X and ROGs) or PM_{10} would potentially contribute to or exacerbate the County's nonattainment of ambient air quality standards. Table 4.2-5 under Impact AQ-1 above summarizes projected on-road vehicle emissions for baseline (year 2022) conditions and 2045 conditions with implementation of the project. As shown in Table 4.2-5, transportation improvements identified in the 2024 RTP/SCS would result in an overall reduction of on-road vehicle emissions when compared to baseline conditions. The projected reduction in air pollutant emissions is largely the result of currently adopted policies and regulations that would decrease mobile source emissions over time, such as the Advanced Clean Cars Program, which includes emission standards for passenger cars and other vehicles, as well as incentives for adoption of low-emission and zero-emission vehicles. Therefore, impacts related to criteria pollutants would remain less than significant.

Mitigation Measures

None required.

Threshold 3:	Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact AQ-4 THE TRANSPORTATION IMPROVEMENT PROJECTS ENVISIONED BY THE 2024 RTP/SCS MAY GENERATE SHORT-TERM AND LONG-TERM EMISSIONS FACILITATING INCREASED EXPOSURE OF SENSITIVE RECEPTORS TO HAZARDOUS AIR POLLUTANTS THAT MAY CAUSE HEALTH RISKS. HOWEVER, IMPLEMENTATION OF THE 2024 RTP/SCS WOULD NOT RESULT IN A REGIONAL INCREASE IN TOXIC AIR EMISSIONS WHEN COMPARED TO THE BASELINE CONDITIONS AND WOULD HAVE SIMILAR LOCALIZED IMPACTS AS THOSE DESCRIBED IN THE 2020 RTP/SCS EIR. IMPACTS WOULD REMAIN SIGNIFICANT BUT MITIGABLE.

Diesel particular matter (DPM) is classified as the primary airborne carcinogen in the state. CARB reports that DPM represents about 70 percent of the potential cancer risk from vehicle travel on a typical urban freeway. More than 90 percent of DPM is less than one micron in size and thus is a subset of $PM_{2.5}$ (CARB 2024a); thus, diesel $PM_{2.5}$ emission levels can serve as a proxy of DPM emission levels. In addition, diesel vehicles are the primary contributor of mobile source NO_X emissions, which have both short-term and long-term health effects (Union of Concerned Scientists 2008; USEPA 2024b). Table 4.2-6 summarizes projected diesel $PM_{2.5}$ and diesel NO_X emissions for baseline (year 2022) conditions and 2045 conditions with implementation of the project. Regional diesel toxics emissions under the 2045 Project scenario would be below baseline levels. Therefore, impacts related to diesel toxics exposure would remain less than significant with mitigation to prepare a health risk assessment for projects with sensitive receptors within 500 feet of sources of TACs or new sources of TACs.

Table 4.2-6 Diesel Toxics Emissions (tons/day)

Scenario	$PM_{2.5}$ (tons/day)	NOx (tons/day)	ROG (tons/day)
2022 Baseline	0.046	1.760	0.090
2045 Project	0.021	0.501	0.023

Notes: The on-road mobile source criteria pollutant emissions estimates for the 2024 RTP/SCS were calculated using CARB's EMFAC2021 emission inventory model. VMT data were extracted from Fehr and Peers who utilized the BCAG's Traffic Demand Model (as further described in Section 4.9, *Transportation and Circulation*) and include pass-through trips from vehicles travelling through Butte County that do not have an origin or destination within the county.

Source: See Appendix B for EMFAC2021 modeling results

The 2024 RTP/SCS would add over 70 net new minor projects relative to the 2020 RTP/SCS. None of the modified or new projects on the 2024 RTP/SCS list would be substantially different from those on the 2020 RTP/SCS list in terms of geographical location, type of project, or size of project. Therefore, the 2024 RTP/SCS would have similar impacts related to localized diesel toxics emissions as described in the 2020 RTP/SCS. With incorporation of mitigation measures included in the 2020 RTP/SCS, impacts would be less than significant.

Mitigation Measures

The following mitigation measures included in the 2020 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects near sensitive land uses. Butte County

and cities in the County should implement these measures originally required by the 2020 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

Mitigation Measure AQ-3[2]

Consistent with the provisions contained in the CARB Air Quality and Land Use Handbook (June 2005), for the proposed building design for residential, school, and other sensitive use projects located within 500 feet of freeways, heavily travelled arterials, railways, and other sources of diesel particulate matter and other known carcinogens, the sponsor agency shall retain a qualified air quality consultant to prepare a health risk assessment in accordance with CARB and the Office of Environmental Health and Hazard Assessment requirements to determine the exposure of project residents/occupants/users to stationary air quality polluters prior to issuance of a demolition, grading, or building permit. The health risk assessment shall be submitted to the sponsor agency for review and approval. The sponsor agency shall implement any approved health risk assessment recommendations to a level that would not result in exposure of sensitive receptors to substantial pollutant concentrations. Such measures may include:

- Do not locate sensitive receptors near the entry and exit points of a distribution center.
- Do not locate sensitive receptors in the same building as a perchloroethylene dry cleaning facility.
- Maintain a 50-foot buffer from a typical gas dispensing facility (under 3.6 million gallons of gas per year).
- Install, operate, and maintain in good working order a central heating and ventilation system or other air take system in the building, or in each individual residential unit, that meets the efficiency standard of the minimum efficiency reporting value (MERV) 13. The heating and ventilation system should include the following features: Installation of a high efficiency filter and/or carbon filter-to-filter particulates and other chemical matter from entering the building. Either high efficiency particulate absorption filters or American Society of Heating, Refrigeration, and Air-Conditioning Engineers 85% supply filters should be used.
- Retain a qualified heating and ventilation consultant or high efficiency particulate absorption rate during the design phase of the project to locate the heating and ventilation system based on exposure modeling from the mobile and/or stationary pollutant sources.
- Maintain positive pressure within the building.
- Achieve a performance standard of at least one air exchange per hour of fresh outside filtered air.
- Achieve a performance standard of at least 4 air exchanges per hour of recirculation.
- Achieve a performance standard of 0.25 air exchanges per hour of unfiltered infiltration if the building is not positively pressurized.

Significance After Mitigation

With the implementation of the above mitigation to prepare a health risk assessment for applicable projects, impacts related to localized toxic air contaminant emissions would remain less than significant, consistent with the findings for the 2020 RTP/SCS EIR.

[2] Note that the 2020 RTP/SCS EIR did not include a Mitigation Measure AQ-2. Mitigation Measures AQ-1 and AQ-3 would both continue to apply to the 2024 RTP/SCS as analyzed in this SEIR.

Impact AQ-5 RE-ENTRAINED DUST FROM TRANSPORTATION SOURCES HAS THE POTENTIAL TO INCREASE AIRBORNE PARTICULATE MATTER LEVELS IN THE PLAN AREA. THE 2024 RTP/SCS WOULD DECREASE PM_{10} IN BUTTE COUNTY RELATIVE TO BASELINE CONDITIONS, WHICH WOULD CONTRIBUTE TO LOWER LEVELS OF RE-ENTRAINED DUST FROM ROADWAY ACTIVITY. IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT.

Re-entrained dust is generated by roadway activity (i.e., roadway dust kicked up by moving vehicles on paved and unpaved roadways). The synergistic effects of road dust (typically measured as PM_{10}) with ozone and the hazardous constituents of re-entrained road dust itself (carcinogens, irritants, pathogens) may affect human heath by contributing to respiratory illnesses such as asthma and allergies. Although advances in motor vehicle emission control technology have decreased the pollutants emitted in vehicle tailpipe exhaust, as mentioned above, PM_{10} is generated by roadway activity and thus, typically increases with VMT. In addition, PM_{10} generation increases with higher vehicle speeds.

Re-entrained roadway dust as well as roadway construction dust emissions are included in the estimation of criteria pollutant emissions for PM_{10} discussed in Impacts AQ-2 and AQ-4. As discussed, emissions levels for PM_{10} criteria pollutants would be reduced from the 2022 baseline conditions with the implementation of the 2024 RTP/SCS. Although VMT increases in 2045 relative to the baseline, emissions would continue to decrease from 2022 levels due to reductions from state measures (see Table 4.2-6). EMFAC2021 takes into account reductions from the Pavley Clean Car Standard and Advanced Clean Cars. In addition, the project would not result in a percent of daily VMT 50 mph or higher compared to the No Project scenario. Butte County is designated as a non-attainment area for state PM_{10}. Therefore, a decrease in re-entrained dust from vehicle activity would not exacerbate the existing PM_{10} standard violation or result in a cumulatively considerable net increase of PM_{10}. As shown in Table 4.2-7, the 2024 RTP/SCS would not result in an increased proportion of daily VMT occurring at 50 mile per hour or higher. Impacts from re-entrained dust generated by roadway activity would remain less than significant.

Table 4.2-7 Roadway Activity Summary

Scenario	Total Daily VMT	Percent of Daily VMT at 50 mph or Higher
2022 Baseline	4,620,750	45
2045 Project	5,234,482	45

Source: Fehr & Peers 2024

Threshold 4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impact AQ-6 IMPLEMENTATION OF THE 2024 RTP/SCS WOULD RESULT IN ODORS GENERATED BY DEVELOPMENT OF NEW AND MODIFIED PROJECTS IN THE 2024 RTP/SCS PROJECT LIST. HOWEVER, THE 2024 RTP/SCS WOULD HAVE SIMILAR ODOR IMPACTS AS THOSE DESCRIBED IN THE 2020 RTP/SCS EIR. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed under Impacts AQ-3 and AQ-4 above, none of the modified or new projects on the 2024 RTP/SCS list would be substantially different from those on the 2020 RTP/SCS list in terms of geographical location, type of project, or size of project. Therefore, the 2024 RTP/SCS would have similar impacts related to odors as described in the 2020 RTP/SCS. Impacts would be less than significant.

4.3 Biological Resources

This section summarizes the setting for biological resources and analyzes impacts related to biological resources resulting from implementation of the 2024 RTP/SCS.

4.3.1 Setting

a. Habitats

Butte County contains a diversity of tree (hardwood, coniferous, and mixed, and riparian forests), shrub (chaparrals), herbaceous (grasslands, pastures) and developed habitat types. Twenty-seven terrestrial habitat types were mapped in Butte County using the California Department of Fish and Wildlife (CDFW) California Wildlife Habitat Relationships (CWHR) habitat classification system within Butte County (CDFW 2024) (Figure 4.3-1). Butte County is a biologically diverse part of the state. According to the CWHR System, there are 43 wildlife habitat classifications in Butte County out of 59 found in the state. Two aquatic habitat types are also designated. Figure 4.3-1 illustrates the land cover types within Butte County. Habitats are generalized, and site-specific variation is present throughout Butte County as the CWHR classification system maps habitats from a broad perspective, and in many areas it is expected that two or more habitats may integrate with one another. Habitats that occur within populated areas also show variation owing to greater anthropogenic influences, such as the introduction of non-native plant species and non-native and feral animals. A discussion of habitat types in the Plan Area is included in Appendix C.

b. Wetlands

Butte County contains a major river, the Sacramento River, which drains an area of the southern Cascade Range, the northwestern Sierra Nevada, and the Central Valley. Major tributaries in the county include the Feather River, Butte Creek, and Big Chico Creek, as well as numerous other streams as shown in Figure 4.3-2. The drainages within these watersheds provide valuable foraging, breeding, and dispersal habitat for a wide variety of species, including sensitive species such as Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley steelhead (*Oncorhynchus mykiss*), and green sturgeon (*Acipenser medirostris*). See Appendix C for a discussion of types of wetlands in the Plan Area.

c. Watersheds

A watershed is a region that is bound by a divide that drains to a common watercourse or body of water. Watersheds serve an important biological function, oftentimes supporting an abundance of aquatic and terrestrial wildlife including special-status species and anadromous and native local fisheries. Watersheds provide conditions necessary for riparian habitat.

Butte County is situated within the Sacramento River Basin. Some of the tributaries to the Sacramento River in Butte County include the Feather River, Pine Creek, Rock Creek, Mud Creek, Big Chico Creek, Butte Creek, Cherokee Canal/Clear Creek, as well as other smaller drainages. Some of the larger watersheds include Lake Oroville, Thermalito Forebay and Afterbay, Paradise Lake, and Sly Creek Reservoir. Figure 4.3-2 depicts the hydrology within the Plan Area. A discussion of watersheds in the Plan Area is included in Appendix C.

d. Wildlife Movement Corridors

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The habitats within the link do not necessarily need to be the same as the habitats that are being linked. Rather, the link merely needs to contain sufficient cover and forage to allow temporary inhabitation by ground-dwelling species. Typically, habitat linkages are contiguous strips of natural areas, though dense plantings of landscape vegetation can be used by certain species that are tolerant to disturbance. Depending upon the species using a corridor, specific physical resources (such as rock outcroppings, vernal pools, or oak trees) may need to be located within the habitat link at certain intervals to allow slower-moving species to traverse the link. For highly mobile or aerial species, habitat linkages may be discontinuous patches of suitable resources spaced sufficiently close together to permit travel along a route in a short period of time.

Wildlife movement corridors can be both large and small scale. The mountainous regions of Butte County may support wildlife movement on a regional scale while riparian corridors, waterways, flood control channels, canals, and contiguous upland habitat on levees may provide more local-scale opportunities for wildlife movement throughout the county. The CDFW BIOS (2024) mapped several essential connectivity areas within Butte County. One corridor extends from the border with Tehama County southward through the Paradise Ridge area then to Lake Oroville. A second corridor extends from the boarder with Tehama County in a southeast direction, across the Philbrook area, towards western Plumas County. A discussion of wildlife movement corridors in the Plan Area is included in Appendix C.

Figure 4.3-1 Habitat Types in Butte County

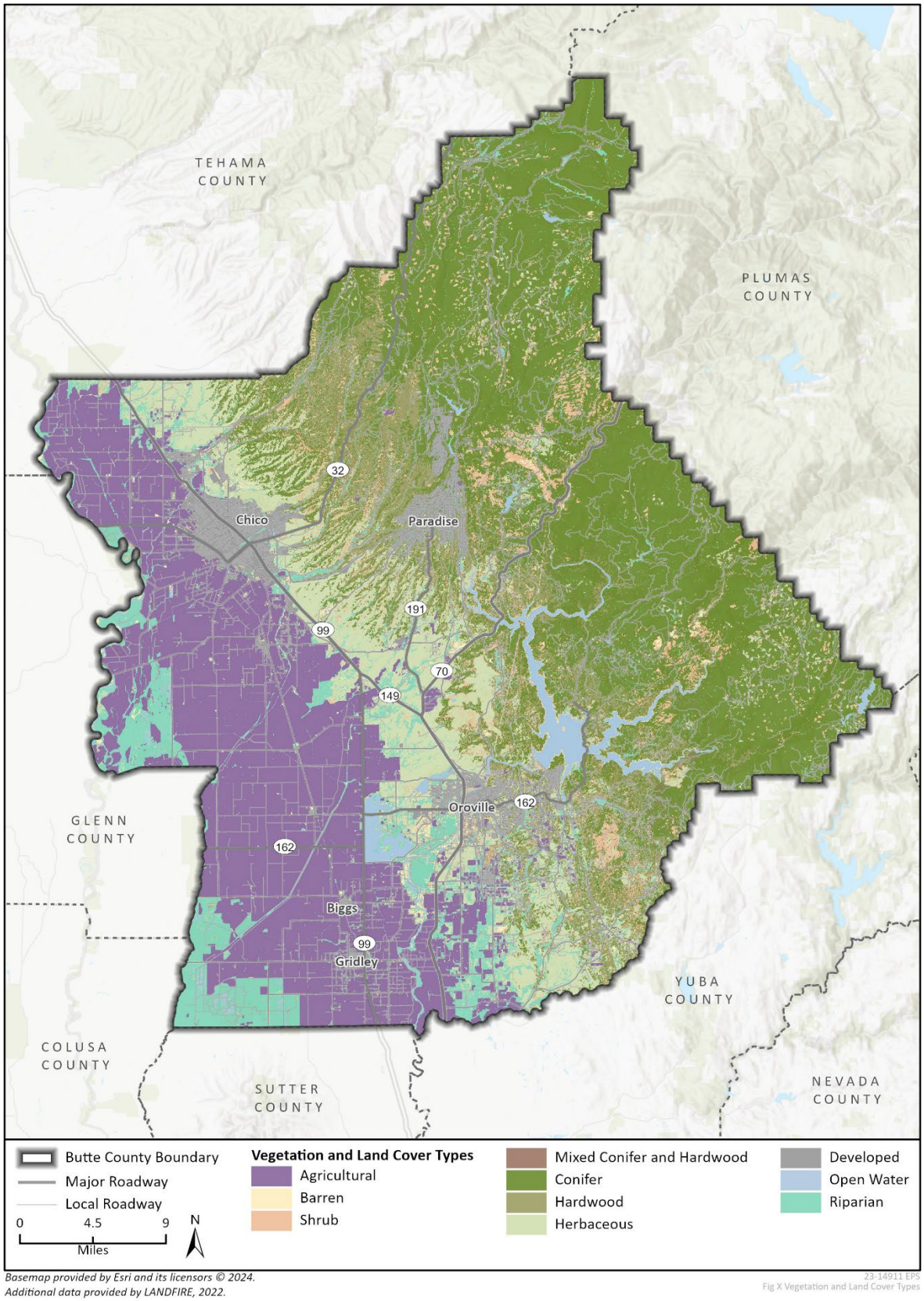
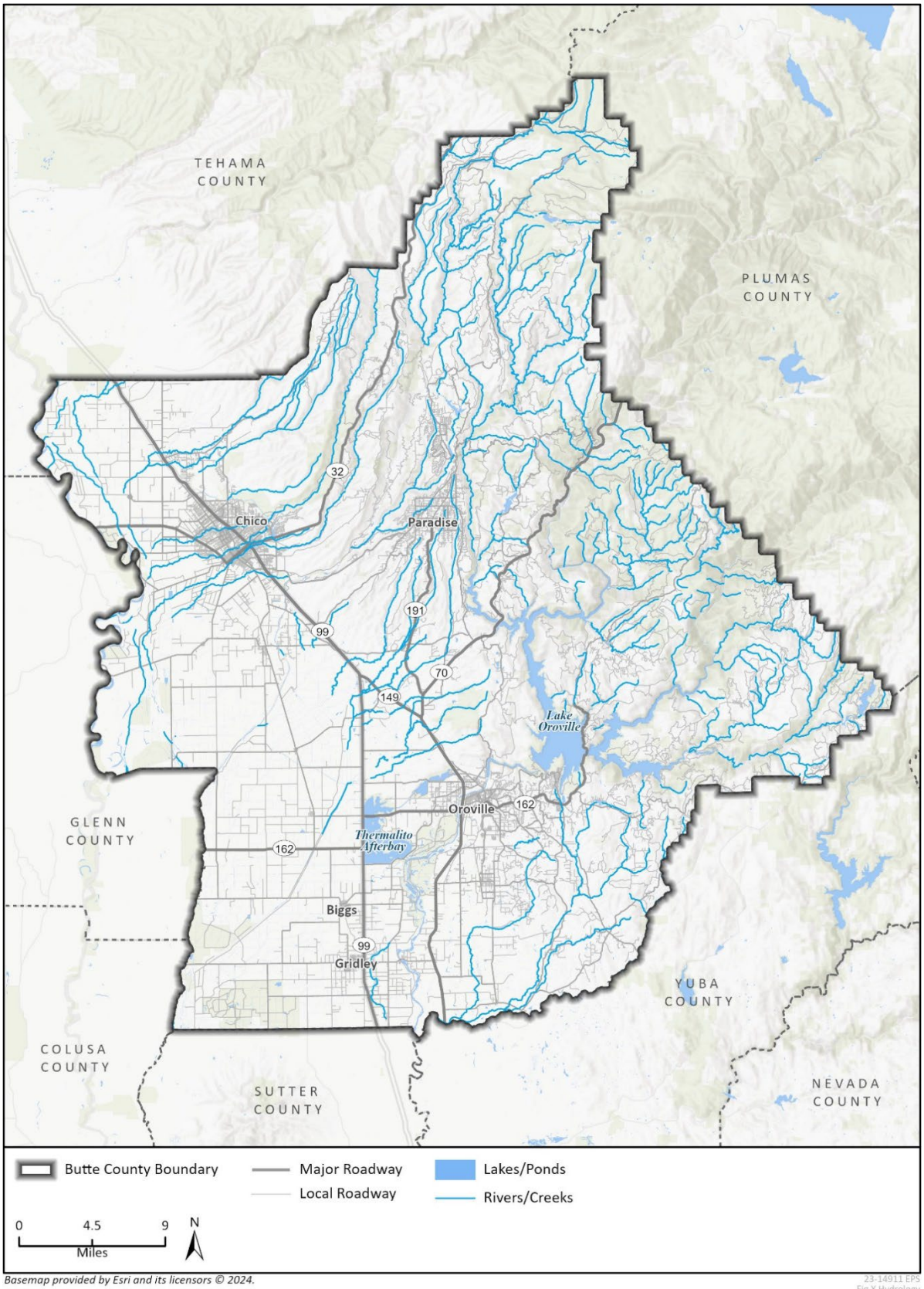


Figure 4.3-2 Hydrology and Riverine Resources



Basemap provided by Esri and its licensors © 2024.
Additional data provided by NHD, 2024; NWI, 2023.

23-14911 EPS
Fig X Hydrology

e. Noxious Weeds

For the purpose of this analysis and future project-specific assessments, a noxious weed is defined as a plant that could displace native plants and natural habitats, affect the quality of forage on rangelands, or affect cropland productivity. The California Department of Food and Agriculture (CDFA) lists weeds and assigns ratings (A–C) to each species on the list. The ratings reflect CDFA's view of the statewide importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against a pest under general circumstances. The rating system includes:

A: an organism of known economic importance subject to state (or commissioner, when acting as a state agent) enforced action involving eradication, quarantine, containment, rejection, or other holding action.

B: an organism of known economic importance subject to eradication, containment, control, or other holding action at the discretion of the individual county agricultural commissioner, or an organism of known economic importance subject to state- endorsed holding action and eradication only when found in a nursery.

C: an organism subject to no state-enforced action outside of nurseries except to retard spread at the discretion of the commissioner, or an organism subject to no state-enforced action except to provide for pest cleanliness in nurseries.

In subsequent environmental review of Butte County transportation projects, a qualified biologist would develop a target list of noxious weeds that present a risk to the specific project area. The target list would include all A-rated weed species. Some B- and C-rated species would be included on project specific target lists if they are identified as target noxious weeds by the county agricultural commission. Weeds would also be included in target lists if they are considered to have great potential for displacing native plants and damaging natural habitats but are not considered too widespread to be controlled effectively. Noxious weeds in Butte County were not inventoried for this program-level analysis because target weeds would differ widely from project to project, depending on the sensitivity of the site to infestation, the nature of the proposed project, and the type of weeds in the immediate area.

f. Special Status Species and Sensitive Communities

For the purpose of this EIR, special status species are those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the 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, and are defined as:

- List 1A = Plants presumed extinct in California
- List 1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)
- List 1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20-80 percent occurrences threatened)
- List 1B.3 = Rare or endangered in California and elsewhere, not very endangered in California (<20 percent of occurrences threatened or no current threats known)

- List 2 = Rare, threatened or endangered in California, but more common elsewhere
- List 3 = Plants needing more information (most are species that are taxonomically unresolved; some species on this list meet the definitions of rarity under CNPS and CESA)
- List 4.1 = Plants of limited distribution (watch list), seriously endangered in California
- List 4.2 = Plants of limited distribution (watch list), fairly endangered in California (20-80 percent occurrences threatened)
- List 4.3= Plants of limited distribution (watch list), not very endangered in California

Queries of the USFWS Environmental Conservation Online System (ECOS): Information for Planning and Consultation (IPaC) (USFWS 2024b), USFWS Critical Habitat Portal (USFWS 2024a), California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife 2024), and California Native Plant Society (CNPS) Online Inventory of Rare, Threatened and Endangered Plants of California (CNPS 2024) were conducted. 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 the Plan Area.

Sensitive Communities and Critical Habitat

The CNDDB lists eight sensitive natural communities that occur within Butte County. Federally designated critical habitat for twelve species also occurs in Butte County. Sensitive communities and critical habitats are listed in Table 4.3-1.

Special-Status Plants and Animals

Butte County is home to several species protected by federal and state agencies. The CNDDB (CDFW 2024), CNPS (2024), and USFWS ECOS IPaC (2024) together list special status plant (74 species) and animal (56 species) species that are known to or with potential to occur in the Plan Area. The status and habitat requirements for each of these species are shown in Appendix C.

Table 4.3-1 Designated Sensitive Communities and Critical Habitats within Butte County

Communities Considered Sensitive by the CDFW
Northern Hardpan Vernal Pool
Northern Basalt Flow Vernal Pool
Northern Volcanic Mud Flow Vernal Pool
Coastal and Valley Freshwater Marsh
Great Valley Valley Oak Riparian Forest
Great Valley Cottonwood Riparian Forest
Great Valley Mixed Riparian Forest
Great Valley Willow Scrub
Critical Habitat Designated by USFWS
Butte County meadowfoam
California red-legged frog
Conservancy fairy shrimp
Greene's tuctoria

Hairy Orcutt grass
Hoover's spurge
Vernal pool fairy shrimp
Vernal pool tadpole shrimp
Yellow-billed cuckoo
Critical Habitat Designated by NMFS
Central Valley spring-run Chinook salmon
Sacramento River winter-run Chinook salmon
California Central Valley steelhead
Southern Distinct Population Segment green sturgeon

Sources: CNDDB (CDFW 2024); USFWS Critical Habitat Portal (2024); NMFS (2024)

Regulatory Framework

Federal, state, and local authorities under a variety of statutes and guidelines share regulatory authority over biological resources. The primary authority for general biological resources lies within the land use control and planning authority of local jurisdictions, which in this instance is the County of Butte and local municipalities. CDFW is a trustee agency for biological resources throughout the state under the California Environmental Quality Act (CEQA) and also has direct jurisdiction under the California Fish and Game Code (CFGC), which includes, but is not limited to, resources protected by the State of California under the CESA.

Federal and State Jurisdictions

United States Fish and Wildlife Service

The USFWS implements the Migratory Bird Treaty Act (16 United States Code [USC] Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668). The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the FESA (16 USC SEction 153 et seq.). The USFWS generally implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadromous species. Projects that would result in "take" of any federally listed threatened or endangered species are required to obtain permits from the USFWS and/or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of FESA, depending on the involvement by the federal government in permitting and/or funding of the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of FESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

United States Army Corps of Engineers

Under Section 404 of the Clean Water Act, USACE has authority to regulate activities that result in discharge of dredged or fill material into wetlands or other "waters of the United States." Perennial and intermittent creeks are considered waters of the United States if they are hydrologically

connected to other jurisdictional waters. The USACE also implements the federal policy embodied in Executive Order 11990, which is intended to result in no net loss of wetlands. In achieving the goals of the Clean Water Act, the USACE seeks to avoid adverse impacts and offset unavoidable adverse impacts on existing aquatic resources. Any discharge into wetlands or other "waters of the United States" that are hydrologically connected and/or demonstrate a significant nexus to jurisdictional waters would require a permit from the USACE prior to the start of work. Typically, when a project involves impacts to waters of the United States, the goal of no net loss of wetlands is met through compensatory mitigation involving creation or enhancement of similar habitats.

California Department of Fish and Wildlife

CDFW derives its authority from the CFGC. The CESA (Fish and Game Code Section 2050 et. seq.) prohibits "take" of state-listed threatened and endangered species. Take under CESA is restricted to direct harm of a listed species and does not prohibit indirect harm by way of habitat modification. The CDFW additionally prohibits take for species designated as Fully Protected under the CFGC under various sections. Projects that would result in take of any state-listed threatened or endangered species are required to obtain an incidental take permit (ITP) pursuant to Fish and Game Code Section 2081. The issuance of an ITP is dependent upon the following: 1) the authorized take is incidental to an otherwise lawful activity; 2) the impacts of the authorized take are minimized and fully mitigated; 3) the measures required to minimize and fully mitigate the impacts of the authorized take are roughly proportional in extent to the impact of the taking on the species, maintain the applicant's objectives to the greatest extent possible, and are capable of successful implementation; 4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures; and 5) issuance of the permit will not jeopardize the continued existence of a state-listed species.

CFGC Sections 3503, 3503.5, and 3511 describe unlawful take, possession, or destruction of birds, nests, and eggs. Fully protected birds (CFGC Section 3511) may not be taken or possessed except under specific permits. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Species of Special Concern (SSC) is a category used by the CDFW for those species that are considered to be indicators of regional habitat changes or are considered to be potential future protected species. SSC do not have any special legal status except those afforded by the CFGC as noted above. The SSC category is intended by the CDFW for use as a management tool to include these species into special consideration when decisions are made concerning the development of natural lands, and these species are consider sensitive as described under the CEQA. CDFW also has authority to administer the Native Plant Protection Act (NPPA) (CFGC Section 1900 et seq.). The NPPA requires CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Under Section 1913(c) of the NPPA, the owner of land where a rare or endangered native plant is growing is required to notify the department at least 10 days in advance of changing the land use to allow for salvage of the plant(s).

Perennial and intermittent streams and associated riparian vegetation, when present, also fall under the jurisdiction of the CDFW. Section 1600 et seq. of the CFGC (Lake and Streambed Alteration Agreements) gives the CDFW regulatory authority over work within the stream zone (which could extend to the 100-year flood plain) consisting of, but not limited to, the diversion or obstruction of the natural flow or changes in the channel, bed, or bank of any river, stream, or lake.

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and each of nine local Regional Water Quality Control Boards (RWQCB) has jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Control Act, which are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. The SWRCB has issued general Waste Discharge Requirements (WDRs) regarding discharges to "isolated" waters of the State (Water Quality Order No. 2004-0004-DWQ, Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction). The local RWQCB enforces actions under this general order for isolated waters not subject to federal jurisdiction, and is also responsible for the issuance of water quality certifications pursuant to Section 401 of the CWA for waters subject to federal jurisdiction.

California Department of Transportation

California Streets and Highways Code Section 156.3. Assessments and remediation of potential barriers to fish passage for transportation projects using state or federal transportation funds are required. Such assessments must be conducted for any projects that involve stream crossings or other alterations and must be submitted to the CDFW.

Local Jurisdictions General Plans.

A discussion of the various General Plans adopted within Butte County is included below. Please see Appendix C for a discussion of how local general plans in Butte County pertain to the protection of biological resources.

BUTTE COUNTY

The Conservation and Open Space Element of the Butte County General Plan includes goals, policies and actions to protect biological resources (Butte County 2023). Various policies are also included that pertain to, but are not limited to, protection of rare and endangered species, development in environmentally sensitive areas, and protection of riverine and riparian areas. Goals, policies and actions regarding biological resources that are applicable to the project in Butte County pursuant to the 2024 RTP/SCS are included in Appendix C.

CITY OF CHICO

The Open Space and Environment Element of the City of Chico General Plan includes goals, policies and actions to protect the natural resources found within the city (City of Chico 2017). Goals, policies and actions that are applicable to projects in Chico pursuant to the 2024 RTP/SCS are included in Appendix C.

CITY OF GRIDLEY

The Conservation Element and Open Space Element of the City of Gridley General Plan includes goals, policies and implementation measures to protect the biological resources found within the city (City of Gridley 2010). The policies and implementation measures that are applicable to projects in Gridley pursuant to the 2024 RTP/SCS are included in Appendix C.

CITY OF BIGGS

The Conservation, Open Space and Recreation Element of the City of Biggs General Plan includes goals, policies and actions to protect the biological resources found within the city (City of Biggs 2014). The goals, policies and actions that are applicable to projects in the City of Biggs pursuant to the 2024 RTP/SCS are included in Appendix C.

CITY OF OROVILLE

The Open Space / Natural Resource Conservation Element of the City of Oroville General Plan includes goals, objectives and implementation measures to protect the biological resources found within the city (City of Oroville 2015). The goals, objectives and implementation measures that are applicable to projects in the City of Biggs pursuant to the 2024 2024 RTP/SCS are included in Appendix C.

TOWN OF PARADISE

The Open Space, Natural Resources and Conservation Element of the Town of Paradise General Plan includes objectives, policies, and implementation measures to protect the biological resources found within the town (Town of Paradise 1994). The objectives, policies and implementation measures that are applicable to projects in the Town of Paradise pursuant to the 2024 2024 RTP/SCS are included in Appendix C.

Local Ordinances

Some resources are afforded protection via local ordinances, such as those that regulate impacts to trees. Some local jurisdictions' municipal codes also address compliance with environmental regulations.

Regional Conservation Planning

A Habitat Conservation Plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the Federal Endangered Species Act (FESA). An approved HCP within a defined plan area allows for the incidental take of species and habitat that are otherwise protected under FESA during development activities.

A Natural Community Conservation Plan (NCCP) is a state planning document administered by CDFG. An approved NCCP within a defined plan area allows for the incidental take of species and habitat that are otherwise protected under CESA during growth and development activities. There is no adopted HCP or NCCP in the Plan Area. While the Butte Regional Conservation Plan (an HCP/NCCP) was initiated in 2007, it was never approved once completed in 2019 and is no longer moving forward, and is therefore not considered in this SEIR.

4.3.2 Impact Analysis

a. Methodology and Significance Thresholds.

It should be noted that the following analysis is programmatic and encompasses the broader 2024 RTP/SCS region because final designs (which also includes project components such as potential staging areas, project access, etc.) are not developed for projects included in the 2024 RTP/SCS. Thus specific impacts to biological resources are unknown at this time. Data used for this analysis include aerial photographs, topographic maps, the CNDDB, the CNPS online inventory of rare and

endangered plants, and accepted scientific texts to identify species. Federal special status species inventories maintained by the USFWS were reviewed in conjunction with the CNDDB and CNPS online inventory. Other data on biological resources were collected from numerous sources, including relevant literature, maps of natural resources, and data on special status species and sensitive habitat information obtained from the CDFW, CNDDB (2016), CDFW BIOS (CDFW, 2016), the California Wildlife Habitat Relationships (CWHR) (CDFW, 2016), the California Native Plant Society (CNPS) online Inventory of Rare, Threatened, and Endangered Plants of California (2016), and the USFWS ECOS IPaC (2016b). The USFWS Critical Habitat Mapper (2016a) and National Wetlands Inventory (NWI; 2016c) were also queried.

b. Significance Thresholds

Pursuant to the *CEQA Guidelines*, potentially significant impacts to biological resources would result if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- 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.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

This SEIR augments the previously certified EIR for the 2020 RTP/SCS and analyzes only the changes in the 2020 RTP/SCS or changes in circumstances under which the 2024 RTP/SCS projects would be implemented since certification of the previous 2016 EIR. Therefore, for issue areas where impacts would be similar to or less than the impact level identified in the previous 2020 SEIR, no further analysis is warranted.

c. Project Impacts and Mitigation Measures.

Threshold 1:	Would the project 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 Game or U.S. Fish and Wildlife Service?
Threshold 3:	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?

Impact BIO-1 SIMILAR TO THE 2020 RTP/SCS, IMPLEMENTATION OF PROJECTS IN THE 2024 RTP/SCS HAVE THE POTENTIAL TO RESULT IN IMPACTS TO SPECIAL STATUS SPECIES AND THEIR HABITATS. IMPLEMENTATION OF MITIGATION MEASURES FROM THE 2020 RTP/SCS SEIR WOULD REDUCE IMPACTS TO LESS THAN SIGNIFICANT.

The USFWS, CNDDB, and CNPS databases identified 130 special-status species that occur, or potentially occur within the Plan Area (see Appendix C). All species are presumed present at any given time throughout their habitat range. Some species require localized microhabitats, while others are highly mobile and may occur throughout the County. Many of the documented special-status species may be directly or indirectly affected by new projects listed in the 2024 RTP/SCS if the improvements are to encroach on the species' habitat, or movement corridors. Below is a brief description of the special status species that are present in the region and their habitat requirements.

Invertebrates

There are seven special-status invertebrates with the potential to occur within the Plan Area. These include: conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, and the valley elderberry longhorn beetle. In addition, the western bumble bee and Crotch's bumble nests underground, occasionally in old animal burrows and requires plants that bloom and provide adequate nectar and pollen. Monarch butterflies are dependent on milkweed for food sources and nests in dense tree canopies.

Reptiles and Amphibians

There are nine special-status reptiles and amphibians with the potential to occur in the Plan Area. These include: the western pond turtle, which requires aquatic environments located along ponds, marshes, rivers, and ditches; Blainville's horned lizard, which occurs in a variety of habitats including, woodland, forest, riparian, and annual grasslands, usually in open sandy areas; the foothill yellow-legged frog (Feather River DPS and North Coast DPS), which occurs in partly shaded and shallow streams with rocky soils; the Cascades frog, which is found in water and surrounding vegetation in mountain lakes, streams, and ponds up to timber line; California red legged frog, which occurs in stream pools and ponds with riparian or emergent marsh vegetation; the Sierra Nevada yellow-legged frog, which occurs in streams, lakes, and ponds at higher elevations; western spadefoot toad, which requires grassland habitats associated with vernal pools; and giant garter snake, which is found in freshwater marshes sloughs, ponds, lakes, agricultural wetlands, and irrigation canals.

Fish

There are seven special-status fish species with the potential to occur in the Plan Area. These include: green sturgeon, hardhead, Central Valley steelhead, Chinook salmon – Sacramento River winter-run, Chinook salmon – Central Valley spring-run ESU, Central Valley fall/late fall-run Chinook salmon, and Sacramento splittail. All of these species are associated with aquatic habitat.

Birds

There are 23 special-status birds with the potential to occur in the Plan Area. These include: Northern goshawk, Tricolored blackbird, Golden eagle, Cooper's hawk, Greater sandhill crane, Short-eared owl, Long-eared owl, Western burrowing owl, Swainson's hawk, Western yellow-billed cuckoo, black swift, yellow warbler, white-tailed kite, willow flycatcher, greater sandhill crane, bald eagle, yellow-breasted chat, least bittern, loggerhead shrike, California black rail, bank swallow, California spotted owl, and least Bell's vireo. These bird species live in a broad range of habitat types within Butte County.

Mammals

There are eleven special-status mammals with the potential to occur in the Plan Area. These include pallid bat, Townsend's big-eared bat, western mastiff bat, western red bat, long-eared myotis, fringed myotis, yuma myotis Sierra Nevada mountain beaver, Sierra Nevada red fox, fisher, and American badger. These mammal species live in a broad range of habitat types within Butte County.

Plants

The Plan Area is composed of a very diverse range of habitat types. These include chaparral, woodland, forest, alpine, grassland, meadows, and riparian, among others. Within these broad habitat types, there are cismontane forests and woodlands, lower montane forests, subalpine forests, foothill grasslands, riparian forests, bogs and fens, and chaparral, among others. This diverse plant mosaic within the region allows for some of the most diverse plant communities in the state. Within these plants communities there are numerous special status plants, many of which only occur in the region (endemic). A full list of the special status plants within the region is in Table 4.3-2.

Sensitive Natural Communities

Some of the terrestrial and wetlands resources found within Butte County are of global as well as regional significance and are therefore considered sensitive natural communities. The sensitive natural communities within the area that are currently rare enough to be listed in the CNDDB include the following: Coastal and Valley Freshwater Marsh, 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 Hardpan Vernal Pool, Northern Volcanic Mud Flow Vernal Pool.

Discussion

Due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific biological resources impacts for each RTP project is not possible at this time. However, as discussed in the 2020 RTP/SCS SEIR, construction and maintenance activities associated with new individual projects proposed under the 2024 RTP/SCS could result in a substantial reduction in local population

size, lowered reproductive success, or habitat fragmentation. Significant impacts on special status wildlife species associated with the 2024 RTP/SCS include:

- increased mortality caused by higher numbers of automobiles on new or widened roads;
- direct mortality from the collapse of underground burrows, resulting from soil compaction;
- direct mortality resulting from the movement of equipment and vehicles through the Plan Area;
- direct mortality resulting from removal of trees with active nests;
- direct mortality or loss of suitable habitat resulting from the trimming or removal of obligate host plants;
- direct mortality resulting from fill of wetlands features;
- loss of breeding and foraging habitat resulting from the filling of seasonal or perennial wetlands;
- loss of breeding, foraging, and refuge habitat resulting from the permanent removal of riparian vegetation;
- loss of suitable habitat for vernal pool invertebrates resulting from the destruction or degradation of vernal pools or seasonal wetlands;
- abandoned eggs or young and subsequent nest failure for special-status nesting birds, including raptors, and other non-special status migratory birds resulting from construction-related noises;
- loss or disturbance of rookeries and other colonial nests;
- loss of suitable foraging habitat for special-status raptor species; and
- loss of migration corridors resulting from the construction of permanent structures or features.

Impacts from individual projects would need to be addressed on a case-by-case basis. The design process for each project included in the 2024 RTP/SCS would involve a level of field reconnaissance to precisely identify the potential for impacts to special status species and to identify project specific design measures that can be employed to avoid or minimize an impact. Project specific design measures may include alternative designs to avoid habitats that are considered more sensitive and required for special status species. As discussed in the 2020 RTP/SCS SEIR, an impact would occur if a project would result in a take of a special status species or their habitat and it would be required to go through a permit process with the appropriate regulatory agency.

Consistency with the County and City policies as well as adopted federal and state regulations that protect special-status species, including their habitat and movement corridors, would ensure that appropriate design measures, including avoidance, if appropriate, are incorporated into the design of each improvement project. However, similar to the findings in the 2020 RTP/SCS SEIR, there is still a reasonable chance that special status species would be impacted from development of projects in the 2024 RTP/SCS. Impacts would be potentially significant.

Mitigation Measures

The following mitigation measures included in the 2016 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2016 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

Mitigation Measure BIO-1: Special Status Species

Prior to final design approval of individual projects, the implementing agency shall have a qualified biologist conduct a field reconnaissance of the environmental limits of the project in an effort to identify any biological constraints for the project, including special status plants, animals, and their habitats, as well as protected natural communities including wetland and terrestrial communities. If the biologist identifies protected biological resources within the limits of the project, the implementing agency shall first, prepare alternative designs that seek to avoid and/or minimize impacts to the biological resources. If the project cannot be designed without complete avoidance, the implementing agency shall coordinate with the appropriate regulatory agency (i.e. USFWS, NMFS, CDFG, USACE) to obtain regulatory permits and implement project-specific mitigation prior to any construction activities.

Significance After Mitigation

Mitigation Measure BIO-1 would assure that impacts to special status species would be less than significant because the measures require that specific analyses and studies are performed to identify and evaluate project impacts to special status species potentially affected by projects implemented under the 2024 RTP/SCS. Compliance with the above mitigation measure and all existing state, local and/or federal regulations would reduce impacts to a less than significant level, consistent with the findings for the 2020 RTP/SCS SEIR

Threshold 2:	Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
Threshold 3:	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?

Impact BIO-2 SIMILAR TO THE 2020 RTP/SCS, IMPLEMENTATION OF PROJECTS IN THE 2024 RTP/SCS HAVE THE POTENTIAL TO RESULT IN IMPACTS TO RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITIES. IMPLEMENTATION OF MITIGATION MEASURES FROM THE 2020 RTP/SCS SEIR WOULD REDUCE IMPACTS TO LESS THAN SIGNIFICANT.

As discussed in the 2020 RTP/SCS SEIR, the Plan Area contains sensitive natural communities, such as riparian, oak woodland, streams, rivers, wet meadows, and vernal pools. Proposed projects in the 2020 RTP/SCS have the potential to impact these sensitive natural communities during project construction and/or operation.

Construction activities associated with individual projects in the 2024 RTP/SCS could occur across a river, stream, or creek. Such activities could result in the disturbance or loss of waters of the United States. This includes perennial and intermittent drainages; unnamed drainages; vernal pools; freshwater marshes; and other types of seasonal and perennial wetland communities. Wetlands and other waters of the United States could be affected through direct removal, filling, hydrological interruption (including dewatering), alteration of bed and bank, and other construction-related activities.

Consistency with the applicable County and City policies would ensure that appropriate design measures, including avoidance, if appropriate, are incorporated into the design of each

improvement project. As discussed in the 2016 RTP/SCS EIR, there is a reasonable chance that natural communities, including wetlands, riparian, or other sensitive natural communities could be impacted throughout the buildout of the individual projects in the 2024 RTP/SCS. This impact could result in adverse effects on wetlands, riparian, or other sensitive natural communities and impacts would be potentially significant.

Mitigation Measures

The following mitigation measures included in the 2016 RTP/SCS EIR and 2020 RTP/SCS SEIR would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2016 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

Mitigation Measure BIO-2(a) Aquatic Environment Documentation

Prior to approval of individual projects, the implementing agency shall retain a qualified biologist to perform an assessment of the project area to identify wetlands, riparian, and other sensitive aquatic environments. If wetlands are present the qualified biologist shall perform a wetland delineation following the 1987 Army Corps of Engineers Wetlands Delineation Manual and any applicable regional supplements to the Delineation Manual. The wetland delineation shall be submitted to the USACE for verification.

Mitigation Measure BIO-2(b) Aquatic Environment Avoidance and Minimization

If wetlands, riparian, or other sensitive aquatic environments are found within the project limits, the implementing agency shall design or modify the project to avoid direct and indirect impacts on these habitats, if feasible. Additionally, the implementing agency shall minimize the loss of riparian vegetation by trimming rather than removal where feasible.

Prior to construction, the implementing agency shall install orange construction barrier fencing to identify environmentally sensitive areas around the wetland (20’ from edge), riparian area (100’ from edge), and other aquatic habitats (250’ from edge of vernal pool), or as defined by the agency with regulatory authority over the resource(s). The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:

The Contractor’s attention is directed to the areas designated as “environmentally sensitive areas.” These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the BCAG. The Contractor will take measures to ensure that Contractor’s forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.

Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 10-foot spacing.

Immediately upon completion of construction activities the contractor shall stabilize exposed soil/slopes. On highly erodible soils/slopes, use a nonvegetative material that binds the soil initially and breaks down within a few years. If more aggressive erosion control treatments are needed, geotextile mats, excelsior blankets, or other soil stabilization products will be used. All stabilization efforts should include habitat restoration efforts.

Mitigation Measure BIO-2I Compensation for Loss of Aquatic Environments

If wetlands or riparian habitat are disturbed as part of an individual project, the implementing agency shall compensate for the disturbance to ensure no net loss of habitat functions and values. Compensation ratios shall be based on site-specific information and determined through coordination with state, federal, and local agencies as part of the permitting process for the project. Unless determined otherwise by the regulatory/permitting agency, the compensation shall be at a minimum ratio of 3 acres restored, created, and/or preserved for every 1 acre disturbed. Compensation may comprise onsite restoration/creation, off-site restoration, preservation, or mitigation credits (or a combination of these elements). The implementing agency shall develop and implement a restoration and monitoring plan that describes how the habitat shall be created and monitored over a minimum period of time.

Significance After Mitigation

Mitigation Measures BIO-2(a) through BIO-2(c) would assure that impacts to wetland resources and sensitive natural communities would be less than significant because measures would be taken to either avoid the impacts or minimize the impacts. Where full avoidance is not possible, the participation in pre-established habitat protection programs or state/federal permit mitigation programs would offset any potential impacts associated with project implementation. Compliance with the above mitigation measures and all existing state, local and/or federal regulations would reduce impacts to a less than significant level, consistent with the findings for the 2020 RTP/SCS SEIR.

Threshold 4:	Would the project interefere 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

Impact BIO-3 SIMILAR TO THE 2020 RTP/SCS, IMPLEMENTATION OF PROJECTS IN THE 2024 RTP/SCS MAY INTERFERE WITH WILDLIFE MOVEMENT. IMPLEMENTATION OF MITIGATION MEASURES FROM THE 2016 RTP/SCS EIR WOULD REDUCE IMPACTS TO LESS THAN SIGNIFICANT.

Native fish and wildlife species within the Plan Area migrate and/or utilize movement corridors. The most notable for their protection status include the Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*). Potential impacts to wildlife migration are described below.

Salmon and Steelhead

Salmon and steelhead trout are anadromous fish species that are present in the San Joaquin and Sacramento River Basins. The Sacramento River system has historically supported steelhead trout and four distinct spawning runs of Chinook salmon: fall, late fall, winter, and spring. The fall/late fall-run Chinook salmon is a federal and state species of concern, and a candidate species for federal listing. The spring-run Chinook salmon population is listed as threatened by both federal and state

agencies. Winter-run Chinook salmon population is listed as a federally and state endangered species. The Central Valley steelhead was federally listed as threatened in 2003. Populations of Central Valley Steelhead and Chinook salmon have been supported by hatcheries within the Sacramento River Basin. Similar to the 2016 RTP/SCS, construction and operation of transportation projects and implementation of the land use scenario may impact salmon and steelhead.

Fall-run and late fall-run Chinook Salmon

Fall-run and late fall-run Chinook salmon migrate, hold, spawn, and rear throughout the entire reaches of Butte, Big Chico, and Little Chico creeks within the Plan Area. Fall -/late fall-run Chinook salmon also migrate, hold, spawn, and rear in the Feather River upstream to the Fish Diversion Dam, which serves as a barrier to movement further upstream. Non-natal juvenile rearing occurs in lower portions of Mud Creek and Big Chico Creek. Similar to the 2016 RTP/SCS, construction and operation of transportation projects and implementation of the land use scenario may impact Chinook salmon.

Spring-run Chinook Salmon

Spring-run Chinook salmon spawning and holding has been recorded in three main drainages in the Plan Area, including Big Chico Creek, Butte Creek, and the Feather River. Spawning habitat occurs in Big Chico Creek from River Mile (RM) 13 to Bidwell Park, in Butte Creek from RM 44 to outside the Plan Area (RM 22), and in the Feather River from the Thermalito Afterbay Outlet to the Fish Barrier Dam. Adult migration habitat is located in waterways within Big Chico and Butte Creeks, Feather River, and on the Sacramento River. Juvenile migration habitat is located downstream towards the Pacific Ocean throughout all spawning and adult migration habitat in the Plan Area. Juvenile rearing habitat consists of all spawning and migration habitat, but can also include non-natal streams in Big Chico Creek, such as Mud, Rock, Pine, and Singer Creeks.

The Sacramento River along the western edge of the Plan Area supports upstream migration habitat for winter-run Chinook salmon moving upstream towards spawning habitat and downstream migration of juveniles moving towards the Pacific Ocean. Spawning habitat for winter-run Chinook salmon is located upstream of the Plan Area. For salmon to access this habitat and for juveniles to move downstream towards the Pacific Ocean, they must use the Sacramento River within the Plan Area as a migration corridor.

The spawning habitat of Central Valley steelhead exists in multiple waterways throughout the Plan Area. Spawning occurs in the Plan Area throughout Mud Creek, Little Chico Creek, Big Chico Creek, Little Dry Creek, Butte Creek, and the Feather River. Adult migration habitat occurs in all spawning habitat and downstream locations in the Plan Area. Juvenile rearing and migration habitat occurs throughout adult spawning and migration habitat. Some non-natal juvenile steelhead habitat exists in Rock Creek, which is a tributary to Big Chico Creek. Similar to the 2020 RTP/SCS, construction and operation of transportation projects and implementation of the land use scenario may impact Chinook salmon.

Migratory Deer

Three separate migratory deer herds occupy the eastern foothills and mountains in Butte County and depend on these areas for all or part of their habitat requirements: East Tehama, Bucks Mountain, and Mooretown. Deer that remain in a restricted area on a year -round basis are considered resident populations. Resident deer herds that occur within the county are Camp Beale

and Sacramento Valley herds. Resident deer herds share the winter ranges with all of the migratory herd populations.

Discussion

New linear transportation improvements proposed in the 2024 RTP/SCS may result in fragmentation of habitat where species can no longer easily move through an area. Impacts may occur where a linear transportation improvement includes a center barrier to be erected that may affect the ability of a smaller animal, and sometimes, less mobile species, to cross the linear transportation corridor to are as that they previously frequented.

In addition, certain fence designs may be barriers to deer movement, particularly to does and fawns. Deer-proof or deer-resistant fences around large acreages in winter range and across critical deer migration corridors result in a significant adverse impact on deer populations. The creation of highways and roads also provides a source of deer mortality.

As discussed in the 2020 RTP/SCS, implementation of projects may impact native wildlife or wildlife corridors, including those for four distinct salmon runs, steelhead, and the migratory deer. Individual projects would be designed consistent with the applicable County and City policies to ensure that appropriate design measures are incorporated into each project. However, design measures required by applicable County and City policies may not be sufficient to reduce impacts to migratory species and impacts would be potentially significant. The following mitigation measure from the 2020 RTP/SCS would ensure that all future projects are designed to facilitate the movement of sensitive species to the greatest extent feasible.

Mitigation Measures

The following mitigation measures included in the 2016 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2020 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

Mitigation Measure BIO-3: Wildlife Corridors

Prior to design approval of individual projects that contain movement habitat, the implementing agency shall incorporate economically viable design measures, as applicable and necessary, to allow wildlife or fish to move through the transportation corridor, both during construction activities and post construction. Such measures may include appropriately spaced breaks in a center barrier, or other measures that are designed to allow wildlife to move through the transportation corridor. If the project cannot be designed with these design measures (i.e. due to traffic safety, etc.) the implementing agency shall coordinate with the appropriate regulatory agency (i.e. USFWS, NMFS, CDFW) to obtain regulatory permits and implement alternative project-specific mitigation prior to any construction activities.

Significance After Mitigation

Mitigation Measures BIO-3 would assure that impacts to wildlife corridors would be less than significant because measures would ensure that all future projects are designed to facilitate the movement of sensitive species to the greatest extent feasible. Where full design mitigation is not feasible, compliance with state and federal permit requirements would offset any potential impacts

associated with project implementation. Compliance with the above mitigation measure and all existing state, local and/or federal regulations would reduce impacts to a less than significant level, consistent with the findings for the 2020 RTP/SCS EIR.

Threshold 5:	Would the project result in the introduction or spread of noxious weeds into previously uninfested areas?

Impact BIO-4 SIMILAR TO THE 2020 RTP/SCS, CONSTRUCTION ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED IN THE 2024 RTP/SCS MAY RESULT IN THE INTRODUCTION AND SPREAD OF NOXIOUS WEEKS. MITIGATION FROM THE 2020 RTP/SCS SEIR WOULD REDUCE IMPACTS TO LESS THAN SIGNIFICANT.

Construction activities associated with individual projects and the land use scenario envisioned by the 2024 RTP/SCS could introduce noxious weeds or result in their spread into currently uninfested areas, similar to the 2020 RTP/SCS. The spread of noxious weeds could result in displacement of special status plant species and degradation of habitat for special status wildlife species. Projects in the 2024 RTP/SCS that may result in impacts from noxious weeds may include but are not limited to congestion relief projects, roadway safety projects, bus and pedestrian/bicycle projects such as the construction of pedestrian/bicycle trails and park-and-ride lots, and the construction of railroad crossing safety projects. Plants or seeds may be dispersed via construction equipment if appropriate measures are not implemented and result in the spread of noxious weeds. As in the 2020 RTP/SCS SEIR, this impact is considered potentially significant because the introduction or spread of noxious weeds could result in a substantial reduction or elimination of species diversity or abundance.

Mitigation Measure

The following mitigation measures included in the 2016 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2016 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

Mitigation Measure BIO-4 Noxious Weeds Survey

Prior to approval of individual projects, the implementing agency shall retain a qualified biologist to determine whether noxious weeds are an issue for the project. If the biologist determines that noxious weeds are an issue, the implementing agency shall review the noxious weed list from the County Agricultural Commission, California Department of Food and Agriculture, and the California Exotic Pest Plant Council to identify target weed species for a field survey. Noxious weed infestations shall be mapped and documented. The implementing agency shall incorporate the following measures into project plans and specifications:

- Certified, weed-free, imported erosion-control materials (or rice straw in upland areas) will be used.
- The project sponsor will coordinate with the county agricultural commissioner and land management agencies to ensure that the appropriate BMPs are implemented.

- Construction supervisors and managers will be educated about noxious weed identification and the importance of controlling and preventing their spread.
- Equipment will be cleaned at designated wash stations after leaving noxious weed infestation areas.

Significance After Mitigation

Mitigation Measure BIO-4 would assure that impacts from noxious weeds would be less than significant by requiring a qualified biologist to perform a field survey to determine the presence of noxious weed infestations in the project area for individual projects. Additionally, this mitigation measure requires plans and specifications to include specific measures that reduce the likelihood of new noxious weed infestations after construction is completed. Compliance with the above mitigation measure would reduce impacts to a less than significant level, consistent with the findings for the 2016 RTP/SCS EIR.

Threshold 6:	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?

Impact BIO-5 THE 2024 RTP/SCS WOULD NOT CONFLICT WITH THE PROVISIONS OF AN ADOPTED HABITAT CONSERVATION PLAN, NATURAL COMMUNITY CONSERVATION PLAN, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN. THERE WOULD BE NO IMPACT.

The Plan Area does not occur within any Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impacts would occur.

Mitigation Measures

No mitigation is required.

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4.4 Paleontological, Cultural, and Tribal Cultural Resources

This section analyzes impacts related to cultural and paleontological resources in the Plan Area.

4.4.1 Setting

Paleontological Resources

Paleontological resources, or fossils, are the remains and traces of prehistoric life (Society of Vertebrate Paleontology [SVP] 2010). Fossils are typically preserved in layered sedimentary rocks and the distribution of fossils is a result of the sedimentary history of the geologic units within which they occur. Fossils occur in a non-continuous and often unpredictable distribution within some sedimentary units, and the potential for fossils to occur within sedimentary units depends on several factors. Although it is not possible to determine whether a fossil will occur in any specific location, it is possible to evaluate the potential for geologic units to contain scientifically significant paleontological resources, and therefore evaluate the potential for impacts to those resources and provide mitigation for paleontological resources if they do occur during construction.

Geologists split California into eleven geomorphic provinces, which are defined as regions of distinctive topography and geology that are distinguished from other regions based on its landforms and geologic history (California Geological Survey 2002). Butte County includes three of these geomorphic provinces: Great Valley, Sierra Nevada, and Cascade Range.

Fossils and their Associated Formations

Geologic units (i.e., formations) are the matrix in which paleontological resources are found. These formations are different from modern soils and cannot be correlated with soil maps that depict modern surface soils, which represent a thin veneer on the surface of the earth. Geologic formations may range in thickness from a few feet to several miles and form complex structural relationships below the surface. Geologic maps show the surface expression (in two dimensions) of geologic formations along with other geologic features such as faults, folds, and landslides. Although sedimentary formations were initially deposited one atop the other, over time the layers have been squeezed, tilted, folded, cut by faults, and vertically and horizontally displaced, so that today, any one rock unit does not usually extend in a simple horizontal layer. If a paleontologically sensitive formation bearing fossils can be found at the surface in an outcrop, chances are that same formation may not only extend many feet vertically below the ground but also for miles horizontally below the surface.

Dozens of distinct geologic formations are found within Butte County (Blake et al. 1992; Lydon et al. 1960; Saucedo and Wagner 1992). These formations vary in origin (e.g., sedimentary, extrusive igneous, intrusive igneous, metamorphic) and, therefore, vary in their potential to preserve paleontological resources.

Paleontological Sensitivity

Paleontological sensitivity refers to the potential for a geologic unit to produce scientifically significant fossils. Direct impacts to paleontological resources occur when earthwork activities, such as grading or trenching, cut into the geologic deposits within which fossils are buried and physically

destroy the fossils. Sensitivity is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey.

In the absence of other sensitivity criteria required by certain federal, state, or local regulatory agencies, the paleontological sensitivity scale explained in the SVP's *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* is generally used (SVP 2010). According to this system, geologic units can be assigned a high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources. Following the literature review, a paleontological sensitivity classification was assigned to each geologic unit mapped within the Plan Area. This criterion is based on rock units within which vertebrate, or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units.

Cultural Resources

Indigenous History

Butte County encompasses portions of the Central Valley, the southern Cascades, and the northern Sierra Nevada foothills archaeological regions. The following setting information has been summarized from the Butte County General Plan Setting and Trends Cultural Resources section (Butte County 2021).

CENTRAL VALLEY

The archaeological record in the Central Valley is generally divided into the Early, Middle, and Late Horizons. The Early Horizon (roughly 6000 to 2000 BCE) is generally characterized by small, mobile foraging groups (Butte County 2021). With population increase circa 4000 BCE, resource gathering intensified, with the resulting archaeological pattern known as the Windmiller Pattern. Windmiller Pattern sites are characterized by diverse faunal and botanical remains, fish spears and hooks, baked clay cooking balls, and ground stone (Butte County 2021).

Middle Horizon (2000 BCE to 500 CE) sites show increase specialization and population pressure, with a transition to long-term villages near the resource-rich marshlands and Delta of the Sacramento and San Joaquin rivers. The archaeological pattern known as the Berkeley Pattern is the primary cultural trend for this period, and is reflected by large amounts of ground stone, more specialized stone tool technology, and more localized resource exploitation (Butte County 2021).

The Late Horizon (500 CE to 1769) is characterized by substantial population growth and continued increasing specialization. The Augustine Pattern, common during this period, is reflected by increased specialization, including detailed stone, shell, and basket work, ceramic production, and small points indicative of bow and arrow use (Butte County 2021). The Augustine Pattern generally reflects the material culture observed by Europeans at contact.

SOUTHERN CASCADES

Archaeologists and researchers working in the Southern Cascades have defined five archaeological phases that span the last 4,000 years: Deadman, Kingsley, Dye Creek, Mill Creek, and Ethnographic (Butte County 2021). The Deadman Complex (circa 1425 to 425 BCE) is generally represented by large leaf-shaped points, manos, and metates. The Kingsley Complex (425 BCE to 575 CE) is

characterized by large stemmed and corner-notched basalt points, scoop Olivella shell beads, flat bone tools, and an increased diversity in ground stone materials. The Dye Creek Complex (575 to 1575 CE) saw an increase in the variety of shell beads and ornaments, and the introduction of large, serrated obsidian and basalt points. The Mill Creek Complex (1575 to circa 1845) reflects a greater diversity in beads and ornaments, twined basketry, and an increased diversity in projectile point types and materials (Butte County 2021). The Ethnographic Complex (circa 1845 to 1911) includes the characteristics of the Mill Creek Complex, with the addition of pitted boulder petroglyphs identified in association with Yana and Konkow ethnographic village sites (Butte County 2021).

NORTHERN SIERRA NEVADA

The northern Sierra Nevada cultural chronology begins with the Washoe Lake Phase (before 10,000 years ago), represented by fluted projectile points. The following Tahoe Reach Phase (8000 to 6000 BCE) is characterized by large stemmed points and occasional groundstone artifacts (Butte County 2021). The subsequent Spooner Phase (6000 to 3000 BCE) is not well-defined in the archaeological record. The Early (3000 to 1000 BCE), and Late (1000 BCE to 725 CE) Martis Phases are well-defined, implying an increase in population in the region (Butte County 2021). The early Kings Beach Phase (dates vary) marks the introduction of the bow and arrow (Butte County 2021).

Post-Contact Setting

Among the initial explorations of the upper Central Valley region by Europeans was that of the Spanish explorer Gabriel Moraga, who in 1808, explored the lower reaches of Feather River, perhaps as far north as Sutter Buttes. In 1820, Captain Luis Arguello led an expedition into the foothills east of Oroville, and gave the Feather River its name (Fariss and Smith 1882:144 -145). By 1828, and throughout the next two decades, Hudson's Bay Company and American Fur Company trappers were active within the region (Wells and Chambers 1973:128).

In 1844, Mexican Governor Manuel Micheltorena issued several land grants within northern California, including portions of what would later become Butte County. Peter Lassen was awarded a grant on Deer Creek, part of which extended into northern Butte County. That same year, Edward A. Farwell and Thomas Fallon settled on the Farwell grant, the eastern boundary of which cuts through present-day Chico, and Samuel Neal occupied the Esquon Grant, encompassing the modern hamlets of Durham and Nelson. In 1847, grantee John Bidwell settled on his famous estate in Chico. Neal and Bidwell in particular were instrumental in establishing the agricultural and livestock industries in the county, and they both made important gold discoveries as well (McGie 1982:35-37; Talbitzer 1987:21-24; Wells and Chambers 1973:128-129).

Butte County was incorporated on February 18, 1850 by an act of the newly commissioned state legislature. The original Butte County embraced all of present-day Butte and Plumas Counties along with portions of Lassen, Tehama, Sutter, and Colusa Counties (Wells and Chambers 1973:131). By 1853, when farms and settlements began to appear in some of the county's more remote regions, it became evident that the area was too large for the Butte County government to meet growing demands for roads, schools, infrastructure, and law and order. Thus, beginning with Plumas County on March 18, 1854, areas within the original Butte County configuration began to be incorporated as separate counties (Fariss and Smith 1882:156-157).

The agricultural value of the land was soon recognized, and large tracts of land were claimed by permanent settlers. The region in the low foothills was originally claimed by a number of individuals who attempted to make a living by farming and ranching. It was soon discovered that the long dry period between May and October with no rainfall caused the grasses to dry, leaving the land useless

for grazing livestock except in the winter and spring. Cattle and sheep ranchers were forced to move their herds to the mountains to a summer range. This was not cost-effective for those with small tracts of land and, as a result, many sold their land to neighbors and moved on to other pursuits, with some families amassing thousands of acres in the region for their cattle and sheep. Agriculture continues to be an important industry in the region, along with the lumber trade. There were a number of sawmills in the county, with shipping of the milled lumber first by railroad and later by truck. Agriculture continued to be the primary industry for Butte County through the 20th century, with the manufacturing and service industries also playing an important role (Butte County 2021).

Known Cultural Resources

According to the Butte County General Plan Setting and Trends Report, there are 4,008 archaeological sites recorded in incorporated and unincorporated Butte County (Butte County 2021). Site types present, or expected to exist, within Butte County include prehistoric period occupation areas (both short and long term), burial areas, ceremonial areas, resource collection and processing sites, lithic scatters, quarries, rock art sites, trails, and isolated examples of prehistoric period artifacts. For the historic period, cultural resources may include post-contact Native American occupation and ceremonial areas, trails, roads, railroads, small and large-scale mining features, logging features, occupation areas (short and long term), buildings, structures, water conveyance features (ditches), quarries, trash dumps, and cemeteries.

In general, prehistoric period cultural resources were situated in the most favored environmental settings—areas adjacent to permanent water sources with relatively level topography. This is also true of most historic period resources, with the exception of mining related features and settlements where the discovery of a mineral deposit did not always correspond with a favored environmental setting. It is important to note that lower sensitivity areas could still contain resources.

Butte County is also rich in historic-period built environment resources (Butte County 2021). The Built Environment Resources Directory, maintained by the Office of Historic Preservation, contains listings for 993 previously recorded built environment cultural resources (OHP 2020). A complete summary of built environment resources known to exist throughout Butte County, including in incorporated cities, can be found in the Butte County General Plan Setting and Trends Report (Butte County 2021).

Tribal Cultural Resources

Ethnographic Setting

The Northern Central Valley was historically occupied by the Penutian-speaking Maidu (Kroeber 1925). Adjacent native groups include the Miwok to the south; Wintun, Yana, Paiute, and Atsugewi to the north; the Washo to the east; and Patwin to the west (Kroeber 1925). The three geographical divisions of the Maidu are the Northeastern Maidu, Northwestern Maidu (sometimes referred to as the Konkow), and the Southern Maidu (sometimes referred to as the Nisenan). The distinction between these three groups is primarily based on language and topographic area (Kroeber 1925).

The Maidu permeant permanent settlements were established on ridges separating streams, on crests, knolls, or terraces near or next to streams and rivers. The northeastern Maidu built their settlements along edges of the Sierra mountain range, open range to one side and pine timbered highlands to the other. Residential structures were often of two types: earth covered and large (k'um) or lean-to made from brush or bark (hübo). The k'um was often not only a dwelling but a

dance hall and sweat house; whereas the hübo was more likely a single-family dwelling (Kroeber 1925).

The Maidu subsistence was based on a mix of fishing, collecting, and hunting. Maidu caught salmon and lamprey eel, while the northern mountain Maidu consumed trout as no other sources were available. Deer and elk were hunted in companies, driven over cliffs, or were cornered and shot/clubbed. Bear hunts were ceremonial and often conducted during hibernation. Other sustenance included rabbit, birds, and acorns. Rabbits, birds, and waterfowl were caught in nets and clubbed or noosed. Acorns were ground into mush and cooked (Kroeber 1925).

Shamans were important to the Maidu lifestyle. The shamans had the ability to heal the sick and interact with the spirits. The Maidu shamans are categorized as the valley shamans, the hill shamans, and the mountain shamans. The valley shamans aid others by interacting with the spirits and relieving pain and burying the cause. Other rituals included nonshamanistic doctoring such as dancing and singing over the troubled individual. The hill shamans believe in inherited abilities to communicate with ancestors. The hill shamans also distinguished proper doctors and dreamer shamans. The mountain shamans were similar to the hill shamans in their belief of inherited abilities; however, the mountain shamans believed that spirits were inherited from one shaman to another and new ownership had to be taken once a shaman passed away. The mountain shamans communicated with both human and animal spirits (Kroeber 1925).

The Maidu depended on tule for creating mats, baskets, boats, and other tools. Elder wood was used to make musical instruments including a flute and a musical bow. Tools such as knives and arrowheads were made from obsidian which was traded for with northern tribes (Kroeber 1925).

Existing Conditions

BCAG sent letters to local Native American contacts that have requested notification of projects under AB 52 on March 28, 2024. The Mooretown Rancheria responded on April 8, 2024 to request a copy of the RTP and to consult on projects in the Mooretown Rancheria aboriginal area. BCAG responded on August 8, 2024, and on September 19, 2024 with an invitation to meet and to inform the Mooretown Rancheria of the availability of the draft document in its entirety. Mooretown replied on April 25, 2024 requesting that BCAG contact the Mooretown Ranchera Tribal Historic Preservation Office if tribal cultural items or Native American human remains are found.

4.4.2 Regulatory Setting

Paleontological Resources

California Environmental Quality Act

Paleontological resources are protected under CEQA, which states in part a project will "normally" have a significant effect on the environment if it, among other things, will disrupt or adversely affect a paleontological site except as part of a scientific study. Specifically, in Section VII(f) of Appendix G of the State CEQA Guidelines, the Environmental Checklist Form, the question is posed thus: "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature." To determine the uniqueness of a given paleontological resource, it must first be identified or recovered (i.e., salvaged). Therefore, CEQA mandates mitigation of adverse impacts, to the extent practicable, to paleontological resources.

CEQA does not define "a unique paleontological resource or site." However, the Society of Vertebrate Paleontology (SVP) has defined a "significant paleontological resource" in the context of environmental review as follows:

> Fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are typically to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years) (SVP 2010).

The loss of paleontological resources meeting the criteria outlined above (i.e., a significant paleontological resource) would be a significant impact under CEQA, and the CEQA lead agency is responsible for ensuring that impacts to paleontological resources are mitigated, where practicable, in compliance with CEQA and other applicable statutes.

California Public Resources Code

Section 5097.5 of the Public Resources Code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Here "public lands" means those owned by, or under the jurisdiction of, the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, public agencies are required to comply with Public Resources Code Section 5097.5 for their own activities, including construction and maintenance, and for permit actions (e.g., encroachment permits) undertaken by others.

Cultural Resources

California Public Resources Code (PRC) Section 21084.1 requires lead agencies determine if a project could have a significant impact on historical or unique archaeological resources. As defined in PRC Section 21084.1, a historical resource is a resource listed in, or determined eligible for listing in, the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources or identified in a historical resources survey pursuant to PRC Section 5024.1(g); or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant. PRC Section 21084.1 also states resources meeting the above criteria are presumed to be historically or cultural significant unless the preponderance of evidence demonstrates otherwise. Resources listed in the National Register of Historic Places (NRHP) are automatically listed in the CRHR and are, therefore, historical resources under CEQA. Historical resources may include eligible built environment resources and archaeological resources of the precontact or historic periods.

CEQA Guidelines Section 15064.5(c) provides further guidance on the consideration of archaeological resources. If an archaeological resource does not qualify as a historical resource, it may meet the definition of a "unique archaeological resource" as identified in PRC Section 21083.2. PRC Section 21083.2(g) defines a unique archaeological resource as an artifact, object, or site about

which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: 1) it contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; 2) has a special and particular quality such as being the oldest of its type or the best available example of its type; or 3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological resource does not qualify as a historical or unique archaeological resource, the impacts of a project on those resources will be less than significant and need not be considered further (CEQA Guidelines Section 15064.5[c][4]). CEQA Guidelines Section 15064.5 also provides guidance for addressing the potential presence of human remains, including those discovered during the implementation of a project.

According to CEQA, an impact that results in a substantial adverse change in the significance of a historical resource is considered a significant impact on the environment. A substantial adverse change could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (CEQA Guidelines §15064.5 [b][1]). Material impairment is defined as demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR or a local register (CEQA Guidelines §15064.5[b][2][A]).

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC §21083.2[a], [b]).

National Register of Historic Places

Properties which are listed in or have been formally determined eligible for listing in the NRHP are automatically listed in the CRHR. The following is therefore presented to provide applicable regulatory context. The NRHP was authorized by Section 101 of the National Historic Preservation Act and is the nation's official list of cultural resources worthy of preservation. The NRHP recognizes the quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects. Per 36 CFR Part 60.4, a property is eligible for listing in the NRHP if it meets one or more of the following criteria:

Criterion A: Are associated with events that have made a significant contribution to the broad patterns of our history

Criterion B: Are associated with the lives of persons significant in our past

Criterion C: Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

Criterion D: Have yielded, or may be likely to yield, information important in prehistory or history

In addition to meeting at least one of the above designation criteria, resources must also retain integrity. The National Park Service recognizes seven aspects or qualities that, considered together,

define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, defined as follows:

Location: The place where the historic property was constructed or the place where the historic event occurred

Design: The combination of elements that create the form, plan, space, structure, and style of a property

Setting: The physical environment of a historic property

Materials: Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property

Workmanship: The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory

Feeling: A property's expression of the aesthetic or historic sense of a particular period of time

Association: The direct link between an important historic event or person and a historic property

Certain properties are generally considered ineligible for listing in the NRHP, including cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions, relocated structures, or commemorative properties. Additionally, a property must be at least 50 years of age to be eligible for listing in the NRHP. The National Park Service states that 50 years is the general estimate of the time needed to develop the necessary historical perspective to evaluated significance (National Park Service 1997:41). Properties which are less than 50 years must be determined to have "exceptional importance" to be considered eligible for NRHP listing.

California Register of Historical Resources

The CRHR was established in 1992 and codified by PRC §§5024.1 and Title 14 Section 4852. The CRHR is an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (Public Resources Code, 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (Public Resources Code, 5024.1(b)). Unlike the NRHP however, the CRHR does not have a defined age threshold for eligibility; rather, a resource may be eligible for the CRHR if it can be demonstrated sufficient time has passed to understand its historical or architectural significance (California Office of Historic Preservation 2006). Further, resources may still be eligible for listing in the CRHR even if they do not retain sufficient integrity for NRHP eligibility (California Office of Historic Preservation 2011). Generally, the California Office of Historic Preservation recommends resources over 45 years of age be recorded and evaluated for historical resources eligibility (California Office of Historic Preservation 1995:2).

Properties are eligible for listing in the CRHR if they meet one of more of the following criteria:

Criterion 1: Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

Criterion 2: Is associated with the lives of persons important to our past

Criterion 3: Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history

Tribal Cultural Resources

California Assembly Bill 52 of 2014 (AB 52) was enacted on July 1, 2015 and 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 requires that the lead agency 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:

1. "Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe" and meets either of the following criteria: 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 cultural 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 the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process with California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. AB 52 requires that lead agencies "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 formal consultation process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

4.4.3 Impact Analysis

This SEIR augments the previously certified EIR for the 2020 RTP/SCS and analyzes only the changes in the 2016 RTP/SCS or changes in circumstances under which the 2024 RTP/SCS projects would be implemented since certification of the previous 2016 EIR and 2020 SEIR. Therefore, for issue areas where impacts would be similar to or less than the impact level identified in the previous 2016 EIR and 2020 SEIR, no further analysis is warranted.

Methodology and Significance Thresholds

Pursuant to the *CEQA Guidelines*, potentially significant impacts to cultural resources would result if the project would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5;
2. Cause a substantial adverse change in the significant of an archaeological resource pursuant to § 15064.5; and
3. Disturb any human remains, including those interred outside of formal cemeteries

According to the *CEQA Guidelines* § 15126.4(b)(3) public agencies should, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature. The following factors shall be considered for a project involving such an archaeological site:

A. Preservation in place (avoidance) is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.
B. Preservation in place may be accomplished by, but is not limited to, the following:
    - Planning construction to avoid archaeological sites.
    - Incorporation of sites within parks, greenspace, or other open space.
    - Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site.
    - Deeding the site into a permanent conservation easement.
C. When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5 Health and Safety Code.
D. Data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented and that the studies are deposited with the California Historical Resources Regional Information Center.

In December 2018, *CEQA Guidelines* were revised and analysis of paleontological resources was moved from Cultural Resources to be analyzed as part of Geology and Soils discussion. However, for consistency with the 2016 RTP/SCS EIR the paleontological resources analysis is included here with the analysis of Cultural Resources.

Appendix G of the *CEQA Guidelines* identifies the following criteria for determining whether a project's impacts would have a significant impact to tribal cultural resources:

1. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in 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 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

The EIR associated with the 2016 RTP/SCS did not specifically address tribal cultural resources, as projects for which a Notice of Preparation was published prior to July 1, 2016 were not required to address this issue pursuant to AB 52. Tribal cultural resources were included in the 2020 RTP/SCS SEIR.

Project Impacts and Mitigation Measures

Threshold 1:	Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Impact CUL-1 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY THE 2024 RTP/SCS COULD CAUSE A SUBSTANTIAL ADVERSE CHANGE IN BUILT ENVIRONMENT CULTURAL RESOURCES THAT ARE HISTORICAL RESOURCES AS DEFINED IN STATE CEQA GUIDELINES SECTION 15064.5. IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

There are no specific development projects pursuant to the land use scenario envisioned by the 2024 RTP/SCS identified at this time, as the land use scenario is similar to what was envisioned in 2020. However, because future infill could demolish or alter historic buildings or structures, the integrity of such resources could be indirectly or directly impacted as a result. In addition to those known historical resources identified above, it is possible that there are buildings and structures which have historical significance (as determined by site-specific evaluation) given the presence of such built environment properties that are over 45 years old within the Plan Area, particularly within existing urbanized areas. Redevelopment or demolition could result in the permanent loss of historic structures. Similarly, proposed transportation projects may require reconstruction or demolition of transportation infrastructure or other structures that are over 50 years old (such as Caltrans historic bridges as listed in Table 4.4-2), and which may be considered historically significant as determined by site-specific evaluation. Such reconstruction or demolition could result in the permanent loss of historic structures. Impacts would be potentially significant.

Mitigation Measures

The following mitigation measures modified from the 2016 RTP/SCS EIR and 2020 RTP/SCS SEIR would apply to the 2024 RTP/SCS.

BCAG and transportation project sponsor agencies shall implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures.

CR-1 Historical Resources Impact Minimization

Prior to individual project permit issuance, the implementing agency of a 2024 RTP/SCS project involving demolition, earth disturbance, or construction of permanent above ground structures or roadways shall prepare a map defining the project site. This map shall indicate the areas of primary and secondary disturbance associated with construction and operation of the facility and will help in determining whether known historical resources are located within the impact zone. If a building or structure greater than 45 years in age is within the identified project site, a survey and evaluation of the structure(s) to determine their eligibility for recognition under State, federal, or local historic preservation criteria shall be conducted. The evaluation shall be prepared by an architectural historian, or historical architect meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualification Standards. The evaluation shall

comply with *State CEQA Guidelines* section 15064.5(b). If historical resources are identified, study recommendations shall be implemented, which may include, but would not be limited to, the following:

- Realign or redesign projects to avoid impacts on known historical resources where possible
- If avoidance of a significant architectural/built environment resource is not feasible, additional mitigation options include, but are not limited to, specific design plans for historic districts, or plans for alteration or adaptive re-use of a historical resource that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitation, Restoring, and Reconstructing Historic Buildings
- If compliance with the Secretary of the Interior's Standards is not feasible and a historical resource will be demolished, the resource should be documented through a Historic American Building Survey (HABS)-like package. This shall include a narrative report of the report and digital photographs in a manner generally consistent with HABS guidelines. The package shall be physically produced using archival materials and offered to local historical repositories.

Significance After Mitigation

Redevelopment or demolition that may be required to implement transportation improvements and/or infill development may result in the permanent loss or damage to historic structures. While implementation of Mitigation Measure CR-1 would reduce impacts to the extent feasible, some project specific impacts may be unavoidable. Therefore, this impact would remain significant and unavoidable. No additional mitigation measures to reduce this impact to less than significant levels are feasible.

Threshold 2:	Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Impact CUL-2 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY THE 2024 RTP/SCS COULD CAUSE A SUBSTANTIAL ADVERSE CHANGE IN ARCHAEOLOGICAL RESOURCES PURSUANT TO STATE CEQA GUIDELINES SECTION 15064.5. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

Archaeological resources are present throughout Butte County (Butte County 2021). Due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific impacts to archaeological resources for each RTP project is not possible at this time. However as discussed in the 2020 RTP/SCS SEIR, it is possible to encounter known and unknown archaeological resources as a result of implementation of transportation improvement projects pursuant to the 2024 RTP/SCS. Similar to the 2020 RTP/SCS many of the improvements proposed under the 2024 RTP/SCS consist of minor expansions of existing facilities that would not involve construction in previously undisturbed areas. However, depending on the location and extent of the proposed improvement and ground disturbance, known and/or unknown cultural resources could be impacted. In particular, construction activities may disturb the resources, thereby exposing them to potential vandalism, or causing them to be displaced from the original context and integrity. Specific analysis will be required as individual projects are implemented. Therefore, impacts to archaeological resources would be potentially significant.

Mitigation Measures

The following mitigation measures modified from the 2016 RTP/SCS EIR and the 2020 RTP/SCS SEIR would apply to the 2024 RTP/SCS.

BCAG and transportation project sponsor agencies shall implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures.

CR-2(a) Archaeological Resources Impact Minimization

Prior to individual project permit issuance, the implementing agency of a 2024 RTP/SCS project involving demolition, earth disturbance, or construction of permanent above ground structures or roadways shall retain a qualified archaeologist meeting the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation, Professional Qualifications Standards, to prepare a Phase I archaeological resources survey of the project site. Implementing agencies shall follow recommendations identified in the survey, which may include, but would not be limited to: subsurface testing, designing and implementing a Worker Environmental Awareness Program (WEAP), construction monitoring by a qualified archaeologist, or avoidance of sites and preservation in place. Recommended mitigation measures will be consistent with State CEQA Guidelines Section 15126.4(b)(3) recommendations and may include but not be limited to preservation in place and/or data recovery. All cultural resources work shall follow accepted professional standards in recording any find including submittal of standard DPR Primary Record forms (Form DPR 523) and location information to the appropriate California Historical Resources Information System office for the project area.

CR-2(b) Unanticipated Discoveries During Construction

If evidence of any prehistoric or historic-era archaeological features or deposits are discovered during construction-related earthmoving activities (e.g., faunal remains, ceramic fragments, trash scatters, lithic scatters), implementing agencies shall halt all ground-disturbing activity proximate to the discovery until a qualified archaeologist (36 CFR Section 61) can assess the significance of the find. If the find is a prehistoric archaeological site, the culturally affiliated California Native American tribe shall be notified. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the archaeologist determines that further information is needed to evaluate significance, a testing plan shall be prepared and implemented. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist shall work with the implementing agency to avoid disturbance to the resources, and if complete avoidance is not feasible in light of project design, economics, logistics and other factors, shall recommend additional measures such as the preparation and implementation of a data recovery plan. Recommended mitigation measures will be consistent with State CEQA Guidelines Section 15126.4(b)(3) recommendations and may include but not be limited to preservation in place and/or data recovery. All cultural resources work shall follow accepted professional standards in recording any find including submittal of standard DPR Primary Record forms (Form DPR 523) and location information to the appropriate California Historical Resources Information System office for the project area. If the find is a prehistoric archaeological site, the culturally affiliated California Native American tribe shall be notified and afforded the opportunity to monitor mitigative treatment. During evaluation or mitigative treatment, ground disturbance and construction work may continue in other parts of the project

area that are distant enough from the find not to impact it, as determined by the qualified archaeologist.

Significance After Mitigation

Implementation of the above measure would reduce impacts to archaeological resources to less than significant levels by requiring cultural resource searches and surveys of project areas and providing a procedure for discovered cultural archaeological resources.

Threshold 3:	Would the project disturb any human remains, including those interred outside of formal cemeteries?

Impact CUL-3 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY THE 2024 RTP/SCS COULD DISTURB UNKNOWN HUMAN REMAINS DURING CONSTRUCTION ACTIVITY. IMPACTS TO HUMAN REMAINS WOULD BE LESS THAN SIGNIFICANT WITH ADHERENCE TO EXISTING REGULATIONS.

Human burials outside of formal cemeteries are often associated with prehistoric archaeological contexts. Therefore, it is possible to encounter unknown human burials because of implementation of transportation improvement projects under the 2024 RTP/SCS. Excavation during construction activities in the BCAG region would have the potential to disturb these resources, including Native American burials.

In addition to being potential archaeological resources, human burials have specific provisions for treatment in PRC Section 5097. The California Health and Safety Code (Sections 7050.5, 7051 and 7054) has specific provisions for the protection of human burial remains. Existing regulations address the illegality of interfering with human burial remains, and protects them from disturbance, vandalism, or destruction, and established procedures to be implemented if Native American skeletal remains are discovered. PRC Section 5097.98 also addresses the disposition of Native American burials, protects such remains, and established the NAHC to resolve any related disputes. Implementation of these regulations would ensure that 2024 RTP/SCS impacts to disturbance of human remains, including those interred outside of formal cemeteries would be less than significant.

Mitigation Measures

None Required

Threshold 4:	Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Impact CUL-4 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS AND THE LAND USE SCENARIO ENVISIONED BY THE 2024 RTP/SCS COULD IMPACT UNKNOWN PALEONTOLOGICAL RESOURCES, IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

Paleontological resources have been found throughout Butte County and geologically similar areas in surrounding counties (Paleobiology Database 2024; University of California Museum of Paleontology 2024). Due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific impacts to paleontological resources for each RTP project is not possible at this time. However, as discussed in the 2020 RTP/SCS EIR, it is possible to encounter known and unknown paleontological resources as a result of implementation of transportation improvement

projects pursuant to the 2024 RTP/SCS. Similar to the 2020 RTP/SCS many of the improvements proposed under the 2024 RTP/SCS consist of minor expansions of existing facilities that would not involve construction in previously undisturbed areas. However, depending on the location and extent of the proposed improvement and ground disturbance, known and/or unknown paleontological resources could be impacted. Specific analysis will be required as individual projects are implemented. Therefore, impacts to paleontological resources would be potentially significant.

Mitigation Measures

The following mitigation measures modified from the 2020 RTP/SCS SEIR would apply to the 2024 RTP/SCS.

BCAG and transportation project sponsor agencies shall implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures.

CR-4(a) Paleontological Resources Study

The project sponsor of a 2024 RTP/SCS project involving earth disturbance shall ensure that the following elements are included in the project's individual environmental review:

1. Prior to construction, a map defining the project site shall be prepared on a project-by-project basis for 2024 RTP/SCS improvements which involve ground disturbance. 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 paleontological resources are located within the project site.
2. A paleontological resources study of each project area, as defined in the project site, shall be completed by a Qualified Paleontologist, as defined by the Society of Vertebrate Paleontology's (SVP) *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (SVP 2010), to determine whether known paleontological resources or paleontologically sensitive geologic formations, which may contain unknown paleontological resources, occur within the project area.
3. If the results of the paleontological resources study determines that paleontological resources may be impacted by the project, additional mitigation measures may be recommended as explained below:

CR-3(b) Paleontological Resources Monitoring

If the paleontological resources study determines that development of the proposed improvement requires paleontological monitoring, the project sponsor shall ensure that a paleontological monitor who meets the Society of Vertebrate Paleontology's definition of a Paleontological Resources Monitor is present to monitor all activities which may impact paleontological resources. The monitoring program shall be overseen by a Qualified Professional Paleontologist. 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-3(c) Paleontological Resources Recovery

If paleontological resources are discovered during a project, whether a paleontological monitor is present or not, a Qualified Professional Paleontologist shall determine whether the resource is

scientifically significant and provide further management directions, if necessary. If the paleontological resources are scientifically significant, they shall be salvaged, prepared (i.e., cleaned and/or stabilized) in a paleontological laboratory, and curated at an institution with a permanent paleontological collection. This requirement can be accomplished through placement of conditions on the project by the local jurisdiction during individual environmental review.

Significance After Mitigation

Implementation of the above measure would reduce impacts to paleontological resources to less than significant levels by requiring a paleontological study, monitoring, and resource recovery.

Threshold 5:	Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in 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?

Impact CUL-5 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS AND FUTURE PROJECTS INCLUDED IN THE LAND USE SCENARIO ENVISIONED IN THE 2024 RTP/SCS HAS THE POTENTIAL TO IMPACT TRIBAL CULTURAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

The Mooretown Rancheria requested notification of finds on future projects but did not identify specific tribal cultural resources within the Plan Area. No other tribes responded to request consultation.

Tribal cultural resources that may be present in Butte County include, but are not limited to, Native American burial sites, village or occupation sites, traditional resource gathering locations and natural landforms. Therefore, tribal cultural resources could be encountered during implementation of the transportation improvement projects included in the 2024 RTP/SCS and the land use scenario envisioned by the 2024 RTP/SCS. Effects on tribal cultural resources are highly dependent on the individual project site conditions and the characteristics of a project. Impacts to tribal cultural resources may include damage or destruction of the resources. Adherence to the requirements of AB 52 encourages tribal consultation with local Native Americans and requires the identification of project-specific substantial adverse effects on tribal cultural resources and appropriate project-specific mitigation measures. If the transportation project sponsor agencies determines that a specific transportation or land use project could cause a substantial adverse change in the significance of a tribal cultural resource, the impact would be significant.

Mitigation Measures

The following mitigation measures modified from the 2020 RTP/SCS SEIR would apply to the 2024 RTP/SCS.

BCAG and transportation project sponsor agencies shall implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures.

TCR-1(a) Identified Tribal Cultural Resources Impact Minimization

Transportation project sponsor agencies shall comply with AB 52, which may require formal tribal consultation. If the implementing agency determines that a project may cause a substantial adverse change to a tribal cultural resource, they shall implement mitigation measures identified in the consultation process required under PRC Section 21080.3.2, or shall implement the following measures where feasible to avoid or minimize the project-specific significant adverse impacts:

- Avoidance and preservation of the resources in place, including, but not limited to: designing and building the project to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space to incorporate the resources with culturally appropriate protection and management criteria.
- Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
  - Protecting the cultural character and integrity of the resource
  - Protecting the traditional use of the resource
  - Protecting the confidentiality of the resource
- Establishment of permanent conservation easements or other culturally appropriate property management criteria for the purposes of preserving or utilizing the resources or places.
- Native American monitoring by the appropriate tribe during soil disturbance for all projects in areas identified as sensitive for potential tribal cultural resources and/or in the vicinity (within 100 feet) of known tribal cultural resources.

TCR-1(b) Unanticipated Tribal Cultural Resources Impact Minimization

If unanticipated potential tribal cultural resources are encountered during ground-disturbing activities, work in the immediate area must halt and the appropriate tribal representative(s), the implementing agency, and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service [NPS] 1983) shall be contacted immediately to evaluate the find. If, in consultation with the implementing agency, the archaeologist and/or tribal representative determines the discovery to be a tribal cultural resource and thus, significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with tribal representatives. If the resource cannot be avoided, a mitigation plan shall be developed to address tribal concerns.

Significance After Mitigation

Mitigation Measure TCR-1(a) would require implementation of mitigation identified through tribal consultation or other feasible mitigation to avoid impacts to identified tribal cultural resources. These measures would protect the resource's character, traditional use, and confidentiality. Mitigation Measure TCR-1(b) would ensure that impacts to unanticipated tribal cultural resources activities would be mitigated in consultation with tribal representatives. Implementation of the above measures would reduce impacts to tribal cultural resources to a less than significant level.

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4.5 Greenhouse Gas Emissions

This section discusses potential impacts related to greenhouse gas emissions and climate change. Air quality impacts are discussed in Section 4.2, *Air Quality*.

4.5.1 Setting

Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. The term "climate change" is often used interchangeably with the term "global warming," but climate change is preferred because it conveys that other changes are happening in addition to rising temperatures. The baseline against which these changes are measured originates in historical records that identify temperature changes that occurred in the past, such as during previous ice ages. The global climate is changing continuously, as evidenced in the geologic record which indicates repeated episodes of substantial warming and cooling. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming over the past 150 years. The United Nations Intergovernmental Panel on Climate Change (IPCC) expressed that the rise and continued growth of atmospheric CO_2 concentrations is unequivocally due to human activities in the IPCC's Sixth Assessment Report (2021). Human influence has warmed the atmosphere, ocean, and land, which has led the climate to warm at an unprecedented rate in the last 2,000 years. It is estimated that between the period of 1850 through 2019, that a total of 2,390 gigatonnes of anthropogenic CO_2 was emitted. It is likely that anthropogenic activities have increased the global surface temperature by approximately 1.07 degrees Celsius between the years 2010 through 2019 (IPCC 2021). Furthermore, since the late 1700s, estimated concentrations of CO_2, methane, and nitrous oxide in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity (USEPA 2021a). Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature.

Gases that absorb and re-emit infrared radiation in the atmosphere are called GHGs. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons and perfluorocarbons and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere, and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are usually by-products of fossil fuel combustion, and CH_4 results from off-gassing associated with agricultural practices and landfills. Human-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and SF_6 (USEPA 2021a).

Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used

to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 30, meaning its global warming effect is 30 times greater than CO_2 on a molecule per molecule basis (IPCC 2021).[1]

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat-trapping effect of GHGs, the earth's surface would be about 33 degrees Celsius (°C) cooler (World Meteorological Organization 2013). However, since 1750, estimated concentrations of CO_2, CH_4, and N_2O in the atmosphere have increased by 47 percent, 156 percent, and 23 percent, respectively, primarily due to human activity (IPCC 2021). GHG emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, are believed to have elevated the concentration of these gases in the atmosphere beyond the level of concentrations that occur naturally.

Greenhouse Gas Emissions Inventories

Global

In 2015, worldwide anthropogenic total 47,000 million MT of CO_2e, which is a 43 percent increase from 1990 GHG levels (USEPA 2021b). Specifically, 34,522 million metric tons (MMT) of CO_2e of CO_2, 8,241 MMT of CO_2e of CH_4, 2,997 MMT of CO_2e of N_2O, and 1,001 MMT of CO_2e of fluorinated gases were emitted in 2015. The largest source of GHG emissions were energy production and use (includes fuels used by vehicles and buildings), which accounted for 75 percent of the global GHG emissions. Agriculture uses and industrial processes contributed 12 percent and six percent, respectively. Waste sources contributed for three percent and two percent was due to international transportation sources. These sources account for approximately 98 percent because there was a net sink of two percent from land-use change and forestry. (USEPA 2021b).

Federal

United States GHG emissions were 6,347.7 MMT of CO_2e in 2021 or 5,593.5 MMT CO_2e after accounting for sequestration. Emissions increased by 6.8 percent from 2020 to 2021. The increase from 2020 to 2021 was driven by an increase in CO_2 emissions from fossil fuel combustion which increased seven percent relative to previous years and is primarily due to the economic rebounding after the COVID-19 Pandemic. In 2020, the energy sector (including transportation) accounted for 81 percent of nationwide GHG emissions while agriculture, industrial and waste accounted for approximately 10 percent, six percent, and three percent respectively (USEPA 2023).

California

Based on a review of the California Air Resource Board (CARB) California Greenhouse Gas Inventory for the years between 2000-2020, California produced 369.2 MMT of CO_2e in 2020, which is 35.3 MMT of CO_2e lower than 2019 levels. The 2019 to 2020 decrease in emissions is likely due in large part to the impacts of the COVID-19 pandemic. The major source of GHG emissions in California is the transportation sector, which comprises 37 percent of the State's total GHG emissions. The industrial sector is the second largest source, comprising 20 percent of the State's GHG emissions while electric power accounts for approximately 16 percent. The magnitude of

[1] The Intergovernmental Panel on Climate Change's (2021) *Sixth Assessment Report* determined that methane has a GWP of 30. However, the 2017 Climate Change Scoping Plan published by the California Air Resources Board uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

California's total GHG emissions is due in part to its large size and large population compared to other states. However, a factor that reduces California's per capita fuel use and GHG emissions as compared to other states is its relatively mild climate. In 2016, California achieved its 2020 GHG emission reduction target of reducing emissions to 1990 levels as emissions fell below 431 MMT of CO_2e (CARB 2022). The annual 2030 statewide target emissions level is 260 MMT of CO_2e (CARB 2017).

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature for the decade from 2006 to 2015 was approximately 0.87°C (0.75°C to 0.99°C) higher than the global mean surface temperature over the period from 1850 to 1900. Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations agree that LSAT as well as sea surface temperatures have increased. Due to past and current activities, anthropogenic GHG emissions are increasing global mean surface temperature at a rate of 0.2°C per decade. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2021).

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 1°F to 2°F higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include loss in water supply from snowpack, sea level rise, more extreme heat days per year, more large forest fires, and more drought years (State of California 2018). Below is a summary of some of the potential effects that could be experienced in California as a result of climate change.

Air Quality

Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. As temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and wildfires have been occurring at higher elevations in the Sierra Nevada Mountains (State of California 2018). If higher temperatures continue to be accompanied by an increase in the incidence and extent of large wildfires, air quality would worsen. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby improving the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Natural Resources Agency 2009).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west,

including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future precipitation trends and water supplies in California. This uncertainty regarding future precipitation trends complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. However, the average early spring snowpack in the western United States, including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. The Sierra snowpack provides most of California's water supply by accumulating snow during the state's wet winters and releasing it slowly during the state's dry springs and summers (April and July). The snowmelt currently provides an annual average of 15 million acre-feet of water each year, and it is predicted that the snowpack will be reduced by 25 to 40 percent compared to its historic average by 2050 (California Department of Water Resources 2013). Climate change will also result in less snowfall at lower elevations and reduce the total snowpack, resulting in less available water (California Department of Water Resources 2013). The State of California projects that average spring snowpack in the Sierra Nevada and other mountain catchments in central and northern California will decline by approximately 66 percent from its historical average by 2050 (State of California 2018).

Hydrology and Sea Level Rise

Climate change has the potential to induce substantial sea level rise in the coming century (State of California 2018). The rising sea level increases the likelihood and risk of flooding. The rate of increase of global mean sea levels over the 2001-2010 decade, as observed by satellites, ocean buoys and land gauges, was approximately 3.2 mm per year, which is double the observed 20th century trend of 1.6 mm per year (World Meteorological Organization [WMO] 2013). As a result, global mean sea levels averaged over the last decade were about 8 inches higher than those of 1880 (WMO 2013). Sea levels are rising faster now than in the previous two millennia and the rise is expected to accelerate, even with robust GHG emission control measures. The most recent IPCC report predicts a mean sea–level rise of 10 to 37 inches by 2100 (IPCC 2021). Regionally, end-of-century sea level rise in the San Francisco Bay area is likely to be 2.5 feet to 4 feet. Areas around the Sacramento-San Joaquin Delta will have more flood potential. Higher sea level will also push salty ocean waters into the fresher waters of the Sacramento-San Joaquin Delta (State of California 2018). In addition, increased CO_2 emissions can cause oceans to acidify due to the carbonic acid it forms. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has a $50 billion annual agricultural industry that produces over a third of the country's vegetables and two-thirds of the country's fruits and nuts (California Department of Food and Agriculture 2020). Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, certain regions of agricultural production could experience water shortages of up to 16 percent; water demand could increase as hotter conditions lead to the loss of soil moisture; crop-yield could be threatened by water-induced stress and extreme heat waves; and plants may be susceptible to new and changing pest and disease outbreaks (State of California 2018). In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (California Climate Change Center 2006).

Ecosystems and Wildlife

Climate change, and the potential resulting changes in weather patterns, could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the annual average maximum daily temperatures in California could rise by 4.4 to 5.8°F in the next 50 years and by 5.6 to 8.8°F in the next century (State of California 2018). Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals related to (1) timing of ecological events; (2) geographic distribution and range; (3) species' composition and the incidence of nonnative species within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan 2006; State of California 2018). Increases in wildfire would further remove sensitive habitat; increased severity in droughts would potentially starve plants and animals of water; and sea level rise will affect sensitive coastal ecosystems.

4.5.2 Regulatory Setting

Federal Regulations

The U.S. Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al*. ([2007] 549 U.S. 05-1120) held that the USEPA has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act. The USEPA issued a Final Rule for mandatory reporting of GHG emissions in October 2009. This Final Rule applies to fossil fuel suppliers, industrial gas suppliers, direct GHG emitters, and manufacturers of heavy-duty and off-road vehicles and vehicle engines and requires annual reporting of emissions. In 2012, the USEPA issued a Final Rule that establishes the GHG permitting thresholds that determine when CAA permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing industrial facilities.

In 2014, the U.S. Supreme Court in *Utility Air Regulatory Group v. EPA* (134 S. Ct. 2427 [2014]) held that USEPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology (BACT).

State Regulations

Assembly Bill 1493 - California Advanced Clean Cars Program

AB 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires CARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, USEPA granted the waiver of CAA preemption to California for its GHG emission standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, and should provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (CARB 2011).

California Global Warming Solutions Act of 2006 (Assembly Bill 32 and Senate Bill 32)

The "California Global Warming Solutions Act of 2006," (AB 32), outlines California's major legislative initiative for reducing GHG emissions. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires CARB to prepare a Scoping Plan that outlines the main state strategies for reducing GHG emissions to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, CARB approved a 1990 statewide GHG level and 2020 target of 431 MMT CO2e, which was achieved in 2016. CARB approved the Scoping Plan on December 11, 2008, which included GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among others (CARB 2008). Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since the Scoping Plan's approval.

The CARB approved the 2013 Scoping Plan update in May 2014 (CARB 2014). The update defined the CARB's climate change priorities for the next five years, set the groundwork to reach post-2020 statewide goals, and highlighted California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluated how to align the state's longer term GHG reduction strategies with other state policy priorities, including those for water, waste, natural resources, clean energy, transportation, and land use (CARB 2014).

On September 8, 2016, the governor signed Senate Bill (SB) 32 into law, extending the California Global Warming Solutions Act of 2006 by requiring the state to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, and implementation of recently adopted policies and legislation, such as SB 1383 and SB 100 (discussed later). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with statewide per capita goals of six MT CO2e by 2030 and two MT CO2e by 2050 (CARB 2017). As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, sub-regional, or regional level), but not for specific individual projects because they include all emissions sectors in the state (CARB 2017). The 2017 Scoping Plan was superseded by CARB's 2022 Climate Change Scoping Plan in November 2022, as discussed in the following subsection.

Assembly Bill 1279 – California Climate Crisis Act

AB 1279, the California Climate Crisis Act, was passed on September 16, 2022, and declares the State would achieve net zero GHG emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative GHG emissions thereafter. In addition, the bill states that the State would reduce GHG emissions by 85 percent below 1990 levels no later than 2045.

In response to the passage of AB 1279 and the identification of the 2045 GHG reduction target, CARB published the Final 2022 Climate Change Scoping Plan in November 2022 (CARB 2022). The 2022 Update builds upon the framework established by the 2008 Climate Change Scoping Plan and previous updates while identifying new, technologically feasible, cost-effective, and equity-focused path to achieve California's climate target. The 2022 Update includes policies to achieve a significant

reduction in fossil fuel combustion, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands (NWL) to reduce emissions and sequester carbon, and the capture and storage of carbon.

The 2022 Update assesses the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan, addresses recent legislation and direction from Governor Gavin Newsom, extends and expands upon these earlier plans, and implements a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045, as well as taking an additional step of adding carbon neutrality as a science-based guide for California's climate work. As stated in the 2022 Update, "The plan outlines how carbon neutrality can be achieved by taking bold steps to reduce GHGs to meet the anthropogenic emissions target and by expanding actions to capture and store carbon through the state's NWL and using a variety of mechanical approaches" (CARB 2022). Specifically, the 2022 Update:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as driving principles throughout the document.
- Incorporates the contribution of NWL to the State's GHG emissions, as well as their role in achieving carbon neutrality.
- Relies on the most up-to-date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration, as well as direct air capture.
- Evaluates the substantial health and economic benefits of taking action.
- Identifies key implementation actions to ensure success.

In addition to reducing emissions from transportation, energy, and industrial sectors, the 2022 Update includes emissions and carbon sequestration in NWL and explores how NWL contribute to long-term climate goals. Under the Scoping Plan Scenario, California's 2030 emissions are anticipated to be 48 percent below 1990 levels, representing an acceleration of the current SB 32 target. Cap-and-Trade regulation continues to play a large factor in the reduction of near-term emissions for meeting the accelerated 2030 reduction target. Every sector of the economy will need to begin to transition in this decade to meet our GHG emissions reduction goals and achieve carbon neutrality no later than 2045. The 2022 Update approaches decarbonization from two perspectives, managing a phasedown of existing energy sources and technologies, as well as increasing, developing, and deploying alternative clean energy sources and technology.

Senate Bill 97 - CEQA: Greenhouse Gas Emissions

SB 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Natural Resources Agency (Resources Agency) adopted amendments to the CEQA Guidelines for the feasible mitigation of GHG

emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

Senate Bill 375 - 2008 Sustainable Communities and Climate Protection Act

SB 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. BCAG was assigned targets of a six percent reduction in GHGs from transportation sources by 2020 and a seven percent reduction in GHGs from transportation sources by 2035.

Senate Bill 1383 - Short-lived climate pollutants

Adopted in September 2016, SB 1383 requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with CARB, to adopt regulations that achieve:

- 50-percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020; and
- 75-percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2025.

The bill also mandates various state and local agencies develop further strategies to reduce emissions generated by specific industries such as agriculture. The stated goal is to achieve the following reduction targets by 2030:

- Methane – 40 percent below 2013 levels
- Hydrofluorocarbons – 40 percent below 2013 levels
- Anthropogenic black carbon – 50 percent below 2013 levels

Senate Bill 100 - California Renewables Portfolio Standard Program

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program, which was last updated by SB 350 in 2015. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Executive Order B-55-18 To Achieve Carbon Neutrality

On September 10, 2018, Governor Brown issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

Clean Energy, Jobs, and Affordability Act of 2022 (Senate Bill 1020)

Adopted on September 16, 2022, SB 1020 creates clean electricity targets for eligible renewable energy resources and zero-carbon resources to supply 90 percent of retail sale electricity by 2035, 95 percent by 2040, 100 percent by 2045, and 100 percent of electricity procured to serve all state agencies by 2035. This bill shall not increase carbon emissions elsewhere in the western grid and shall not allow resource shuffling.

Local Regulations

Butte County and several cities in the County, City of Oroville and City of Chico, have adopted climate action plans to address climate change. Butte county adopted its most recent Climate Action Plan in December 2021. The City of Chico adopted a 2021 Climate Action Plan and the City of Oroville adopted a Community Climate Action Plan on March 31, 2015. Local climate action plans are described in more detail below. as described below. No other cities in Butte County have adopted CAPs.

Butte County Climate Action Plan

The Butte County Climate Action Plan (CAP) was adopted on December 14, 2021 in an effort to reduce greenhouse gas emissions and address climate change in the unincorporated county. The 2021 CAP is an update of the 2014 CAP, providing updated information, an expanded set of GHG reduction strategies, and a planning horizon out to 2050. The CAP provides goals, policies, and programs aimed to address climate change adaptation and reduce GHG emissions goals as identified in AB 32, SB 32, and SB 375. A key goal of the CAP is to reduce per-capita emissions to 6.0 $MTCO_2e$ by 2030 and 2.0 MT CO_2e by 2050. In order to achieve these strategies, the 2021 CAP includes goals, strategies, and recommended actions aimed at reducing GHG emissions. The 15 strategies identified in the 2021 CAP are organized into 6 sectors (energy, water and wastewater, transportation and land use, solid waste, agriculture, and government operations).

City of Chico 2021 Climate Action Plan Update

The City of Chico developed the 2021 Climate Action Plan Update to outline strategies for a substantial reduction of GHG emissions generated by local activities. The plan guides the growth of Chico and contains specific actions to reduce GHG emissions and achieve the City's target of 40% below 1990 levels by 2030 and carbon neutrality by 2045, consistent with SB 32 and EO B-55-18 targets (City of Chico 2021).

City of Oroville Community Climate Action Plan

The City of Oroville adopted their Community Climate Action Plan on March 15, 2015. The City's CAP included a citywide target to reduce GHG emissions from community activities to 11 percent below 2010 levels by 2020, consistent with AB 32 targets. The CAP was adopted prior to implementation of SB 32 and the 2022 Scoping Plan. Therefore, the CAP does not include forecasts or emissions targets beyond 2020. The City's CAP outlines a plan to address and adapt to potential economic, environmental, and social effects of climate change. Transportation is the largest source of community emissions with approximately 48 percent of all emissions originating from this sector. The Community CAP includes actions for reducing emissions by focusing on energy efficiency and renewable energy, land use and transportation, waste reduction, water conservation, and trees and agriculture (City of Oroville 2015).

4.5.3 Impact Analysis

Significance Thresholds

Pursuant to the *CEQA Guidelines*, potentially significant impacts related to greenhouse gas emissions would result if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence on climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (*CEQA Guidelines* Section 15355).

For future projects, the significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). To date, the Butte County Air Quality Management District (BCAQMD) has not formally adopted GHG CEQA thresholds but recommends compliance with a Qualified GHG Reduction Strategy, Lead Agency threshold, or consistency with State goals (SB 32 and 2022 Scoping Plan) for evaluating GHG impacts. As a result, this section uses three thresholds of significance (consistent with *CEQA Guidelines*). The 2024 RTP/SCS would result in significant impacts related to GHG emissions if it would:

- Increase total GHG emissions compared to baseline conditions (defined as the emissions inventory for 2022);
- Conflict with SB 32, CARB's 2022 Scoping Plan or SB 375 GHG emission reduction targets; and/or
- Conflict with applicable local GHG reduction plans.

For the GHG emissions impacts resulting from the 2024 RTP/SCS, this analysis evaluates potential impacts against current, existing baseline conditions (year 2022). The year 2022 is used as the EIR baseline, as it is the most recent year for which accurate county-wide vehicle miles traveled (VMT) data is available. If county-wide per capita GHG emissions associated with the proposed plan do not exceed the 2022 baseline, impacts related to GHG emissions would not be significant.

The SB 375-based threshold is also included as it demonstrates BCAG's achievement of CARB-specified targets and consistency toward achieving statewide GHG reduction targets encoded in AB 32 and SB 32. For BCAG, the targets set by CARB are a six percent decrease in per capita GHG emissions for the planning year 2020 and a seven percent increase in per capita GHG emissions in planning year 2035, as compared to baseline per capita emissions levels in 2005. These targets apply to the BCAG region as a whole for all on-road light-duty trucks and passenger vehicle emissions.

The 2024 RTP/SCS, in meeting its SB 375 target, is in line with the goals of the 2022 Scoping Plan, which builds on the emission reduction trajectory established by AB 32 (short-term goal for 2020) and SB 32 (mid-term goal for 2030), providing a long-term goal for 2045. Nonetheless, based on

BCAQMD guidance, a qualitative discussion of consistency with the 2022 Scoping Plan, Butte County CAP, City of Oroville CAP, and City of Chico CAP is included herein.

Methodology

Short-term Emissions

The California Air Pollution Control Officer Association (CAPCOA) does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity. As stated in the CEQA and Climate Change white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA 2008). In addition, the municipalities in Butte County have not identified construction-related GHG emissions thresholds.

Construction-related emissions are speculative at the RTP/SCS level because such emissions are dependent on the characteristics of individual development projects. However, because construction associated with the transportation projects and land use scenario envisioned by the 2024 RTP/SCS would generate temporary GHG emissions (primarily due to the operation of construction equipment and truck trips), a qualitative analysis is provided below.

Long-term Emissions

Two basic quantities are required to calculate a given emissions estimate: an emission factor (CO_2) and an activity factor (VMT). In general, the emission factor is the amount of emissions generated by VMT. A county-wide, on-road mobile source emission estimate was calculated by adding the product of the vehicle activity (VMT and trips) generated by the land use pattern and transportation projects envisioned in the 2024 RTP/SCS (the preferred land use and transportation scenario as modeled by BCAG and Fehr & Peers) to the emissions factors contained in CARB's EMFAC2021 air quality model.

The EMFAC2021 model generates an output of CO_2 emissions, which were used as the overall indicator of GHG emissions, per the recommendations of the CARB SB 375 Regional Targets Advisory Committee. In order to calculate the CO_2 emissions within EMFAC2021, VMT, vehicle trips, and VMT by speed class distributions were extracted from the Fehr & Peers traffic analysis for the baseline years (2005 and 2022) and target years (2035 and 2045) (Appendix D). The VMT speed bin data was then entered into the EMFAC2021 model. The CO_2 emissions associated with vehicle starts are accounted for in the EMFAC2021 model based on the distribution of vehicle starts by vehicle classification, vehicle technology class, and operating mode. EMFAC2021 adds these vehicle starts to the running emissions to compute total on-road mobile source emissions. The CO_2 emissions for the vehicle classes were then extracted from the EMFAC2021 output and reported.

For the purposes of SB 375 compliance, passenger vehicles analyzed include the following vehicle categories from CARB's EMFAC2014 air quality model: LDA (passenger cars), LDT1 (light-duty trucks, 0-3,750 pounds), LDT2 (light-duty trucks, 3,751-5,750 pounds), and MDV (medium-duty trucks, 5,751-8,500 pounds). In accordance with CARB guidance, the same methodology and version of EMFAC (i.e., EMFAC2014) was utilized for SB 375 modeling for the 2024 RTP/SCS to provide a consistent comparison of per capita CO_2 emissions with the SB 375 targets.

Threshold 1:	Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-1 DUE TO THE INCLUSION OF A LARGER NUMBER OF PROJECTS, IMPLEMENTATION OF THE 2024 RTP/SCS WOULD POTENTIALLY RESULT IN HIGHER QUANTITIES OF SHORT-TERM GHG EMISSIONS THAN IMPLEMENTATION OF THE 2020 RTP/SCS. HOWEVER, WITH MITIGATION FROM THE 2020 RTP/SCS EIR, IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT.

Construction activities associated with transportation improvement projects envisioned by the 2024 RTP/SCS would generate temporary short-term GHG emissions primarily due to the operation of construction equipment and truck trips. Construction-related emissions are speculative at the plan level because such emissions are dependent on the characteristics of individual development projects.

The 2024 RTP/SCS would add over 70 net new minor projects relative to the 2020 RTP/SCS. None of the modified or new projects on the 2020 RTP/SCS list would be substantially different from those on the 2020 RTP/SCS list in terms of geographical location, type of project, or size of project. In addition, the land use scenario envisioned by the 2020 RTP/SCS has not been altered compared to that contained in the 2020 RTP/SCS. Nevertheless, because the 2024 RTP/SCS includes more transportation projects, it would potentially result in a greater amount of short-term GHG emissions associated with their construction. With incorporation of Mitigation Measure GHG-1, from the 2020 RTP/SCS this impact would remain less than significant.

Mitigation Measures

The following mitigation measure included in the 2020 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and shall implement the following mitigation measure for transportation projects identified in Table 2-1 of Section 2. *Project Description*. Butte County and cities in the County should implement these measures originally required by the 2020 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

GHG-1 Construction Emissions Measures

BCAG shall and sponsor agencies can and shall ensure that diesel particulate exhaust from construction equipment apply the following applicable GHG-reducing measures recommended by the Butte County Air Quality Management District (BCAQMD):

- Fuel all off-road and portable diesel-powered equipment with CARB certified motor vehicle diesel fuel;
- Use diesel construction equipment meeting CARB's Tier 2 certified engines or cleaner (i.e., Tier 3 or 4) off-road heavy-duty diesel engines, and comply with State Off-Road Regulation;
- Use on-road heavy-duty trucks that meet CARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines, and comply with the State On-Road Regulation;
- Construction or trucking companies with fleets that do not have engines in their fleet that meet the engine standards identified in the above two measures may be eligible by proving alternative compliance;
- Electrify equipment when feasible;
- Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and

- Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel.

Significance After Mitigation

With the implementation of the above mitigation, impacts related to short-term GHG emissions would be less than significant, consistent with the findings of the 2020 RTP/SCS.

Impact GHG-2 Implementation of the 2024 RTP/SCS would not increase GHG emissions compared to the 2022 baseline. This impact would remain less than significant.

Projected GHG emissions for the year 2045 under the proposed 2024 RTP/SCS were compared to the 2022 baseline. GHG emissions for the 2024 RTP/SCS were calculated using CARB's EMFAC2021 air quality model based on the VMT that would be generated as a result of the 2024 RTP/SCS (refer to Section 4.9, *Transportation and Circulation*). Table 4.6-1 summarizes the plan's transportation-related emissions from all vehicle classes. An analysis of all vehicle classes is provided to determine the significance of total GHG emissions in accordance with the *CEQA Guidelines*. As such, if the 2024 RTP/SCS does not result in a significant increase in GHG emissions, impacts would be less than significant. This is independent of the SB 375 analysis and regional targets for per-capita transportation emissions from passenger vehicles, which are analyzed under Impact GHG-3 below. As shown in Table 4.6-1, the project would result in lower emissions than the 2022 baseline. Therefore, impacts would remain less than significant similar to the 2020 RTP/SCS.

Table 4.6-1 Carbon Dioxide Emission Comparison

Scenario	VMT	CO_2 Emissions (lbs/year)[1]	Percent Change
2022 Baseline	4,620,750	1,892,817,000	N/A
2045 Project	5,234,482	1,395,687,000	-26%

[1] The on-road mobile source CO_2 emissions estimates for the 2024 RTP/SCS were calculated using CARB's EMFAC2021 emission inventory model. VMT data were provided from Fehr and Peers using the BCAG's Traffic Demand Model (see Section 4.9, *Transportation and Circulation*). VMT data for GHG analysis excludes pass-through trips from vehicles travelling through Butte County that do not have an origin or destination within the county. The decrease in air pollutant emissions in later years despite an increase in VMT is largely attributable to increasingly fuel-efficient vehicles, improving emissions control technology, and an increased share of electric vehicle adoption resulting from currently adopted State policies including the Advanced Clean Cars Program.

Mitigation Measures

None required.

Impact GHG-3 Implementation of the 2024 RTP/SCS would not interfere with the GHG emissions goals of the 2022 Scoping Plan or SB 375. Therefore, this impact would remain less than significant.

As indicated in the 2022 Scoping Plan, SB 375 comprises one of California's strategies to reduce GHG emissions from transportation sources, which generate the majority of California's GHG emissions. SB 375 requires that local MPOs develop integrated land use and transportation plans to meet GHG reduction targets for cars and light trucks established by CARB. CARB is required to review and revise reduction targets every eight years, allowing for increasingly stringent reduction targets over time and updated time horizons. According to the 2022 Scoping Plan, with implementation of SB 375 and other strategies outlined in the 2022 Scoping Plan, California will be able to achieve statewide targets set forth in SB 32 for 2030 and carbon neutrality no later than 2045. Table 4.6-2

summarizes the 2024 RTP/SCS's per capita transportation-related emissions from passenger vehicles.

Table 4.6-2 2024 RTP/SCS Per Capita Carbon Dioxide Emission Comparison: Passenger Vehicles

Scenario	VMT per Weekday	CO_2 Emissions (tons/day)[1]	Population[3]	Per Capita CO_2 Emissions (lbs/day)	Percent Change
2005 Baseline[2]	3,982	1,921	208,322	18.45	N/A
2035 Project	4,350	1,941	236,433	17.23	-7%

[1] The on-road mobile source CO_2 emissions estimates for the 2024 RTP/SCS were calculated using CARB's EMFAC2014 emission inventory model. VMT data were provided from Fehr & Peers using the BCAG's Traffic Demand Model (see Section 4.9, *Transportation and Circulation*). VMT data for GHG analysis excludes pass-through trips from vehicles travelling through Butte County that do not have an origin or destination within the county.

[2] 2005 baseline assumes the same growth and population as in the 2020 RTP/SCS.

[3] Household population, excludes group quarters population, as required by CARB

See Appendix B for modeling results

Note: Numbers may change slightly following review with CARB

As shown in Table 4.6-2, the 2005 per capita GHG emissions from passenger vehicles were estimated for the Plan Area to be approximately 18.45 pounds per day. Under the 2024 RTP/SCS, per capita GHG emissions in 2035 would be approximately 17.23 pounds per day (a decrease of approximately 7 percent from 2005 levels). Thus, the SB 375 targets would be met, as the per capita GHG emissions in 2020 and 2035 would not exceed the targets set by CARB. It is important to note that population is expected to increase and passenger vehicle related GHG emissions would continue to occur throughout the county, regardless of whether the proposed 2024 RTP/SCS is adopted. As demonstrated above, the proposed 2024 RTP/SCS would contribute to an overall reduction in passenger vehicle related emissions. The projections in Table 4.6-2 do not include any additional measures from the 2022 Scoping Plan to further reduce passenger vehicle GHG emissions and are, therefore, conservative. Application of Pavley fuel efficiency standards and low carbon fuel standards, both 2022 Scoping Plan measures, are anticipated to reduce levels even further. Implementation of the 2024 RTP/SCS would help the region achieve its SB 375 reduction targets for year 2035 as well as help the state achieve its SB 32 and 2022 Scoping Plan emissions reduction targets. Therefore, impacts would remain less than significant.

Mitigation Measures

None required.

Threshold 2: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact GHG-4 THE 2024 RTP/SCS INCLUDES TRANSIT AND ACTIVE TRANSPORTATION PROJECTS THAT WOULD REDUCE VMT AND ASSOCIATED GHG EMISSIONS. IN ADDITION, THE 2024 RTP/SCS WOULD BE CONSISTENT WITH STATEWIDE REDUCTION TARGETS IDENTIFIED IN SB 32 AND THE 2022 SCOPING PLAN. THEREFORE, THE PROJECT WOULD NOT CONFLICT WITH OTHER STATEWIDE AND LOCAL GHG REDUCTION PLANS AND POLICIES. THIS IMPACT WOULD REMAIN LESS THAN SIGNIFICANT.

As discussed in Impact GHG-2 above, the proposed 2024 RTP/SCS was determined to be consistent with the goals of SB 32 and the 2022 Scoping Plan. The projects and policies identified in the 2024 RTP/SCS are designed to align transportation and land use planning to reduce VMT and

transportation-related GHG emissions. Implementation of the proposed 2024 RTP/SCS would help the region achieve its SB 375 GHG emissions reduction target, therefore contributing to the state's overall GHG emissions reduction goals identified in SB 32 and the 2022 Scoping Plan. Since the proposed 2024 RTP/SCS is consistent with the goals of SB 32, the 2022 Scoping Plan, and SB 375, it would not conflict with the goals of local reduction plans, including the Butte County Climate Action Plan, City of Chico Climate Action Plan, and City of Oroville Community Climate Action Plan discussed above, which are designed to meet the same state goals.

The 2022 Scoping Plan also includes a number of State strategies for reducing VMT and GHG emissions relevant to the 2024 RTP/SCS, including the following:

- Achieve 100 percent ZEV sales of light-duty vehicles by 2035 and medium-heavy-duty vehicles by 2040.
- Develop a rapid and robust network of Zero Emission Vehicle (ZEV) refueling infrastructure to support the needed transition to ZEVs.
- Invest in the infrastructure to support reliable refueling for transportation such as electricity and hydrogen refueling.
- Reimagine new roadway projects that decrease VMT in a way that meets community needs and reduces the need to drive.
- Invest in making public transit a viable alternative to driving by increasing affordability, reliability, coverage, service frequency, and consumer experience
- Expand and complete planned networks of high-quality active transportation infrastructure.3
- Ensure alignment of land use, housing, transportation, and conservation planning in adopted regional plans, such as RTP/SCS, regional housing needs assessments (RHNA), and local plans (e.g., general plans, zoning, and local transportation plans), and develop tools to support implementation of these plans.

The 2024 RTP/SCS includes active transportation and transit projects that would support reductions in GHG emissions from all vehicle classes. Therefore, the 2024 RTP/SCS would support applicable goals included in the 2022 Scoping Plan to reduce GHG emissions from transportation sources.

The 2024 RTP/SCS alone is not intended to meet the SB 32 and 2022 Scoping Plan emissions reduction targets. According to the 2022 Scoping Plan, with implementation of SB 375 and other strategies outlined in the 2022 Scoping Plan, California will be able to meet statewide targets set forth in SB 32 and AB 1279. Given that the primary statutory responsibility of the 2024 RTP/SCS is to achieve SB 375 targets, which it does, and support applicable goals included in the 2022 Scoping Plan, the 2024 RTP/SCS has successfully contributed its share to meeting SB 32 and AB 1279 targets. Therefore, the project would not conflict with any applicable GHG reduction plans and policies. This impact would remain less than significant.

Mitigation Measures

None required.

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4.6 Energy

This section analyzes the additional energy impacts of the 2024 RTP/SCS relative to the 2020 RTP/SCS, following the guidance for evaluation of energy impacts in Section 15126.2(b) and Appendix G of the *CEQA Guidelines*.

4.6.1 Setting

Energy relates directly to environmental quality. Energy use can adversely affect air quality and can generate greenhouse gas (GHG) emissions that contribute to climate change. Fossil fuels are burned to power vehicles, to generate electricity for powering residences and commercial/industrial buildings, and to heat and cool building spaces. Transportation energy use is related to the fuel efficiency of cars, trucks, and public transportation; choice of different travel modes such as auto, carpool, and public transit; and miles traveled by these modes. Construction and routine operation and maintenance of transportation infrastructure also consume energy.

a. Energy Supply

Petroleum

California

California is one of the top producers of petroleum in the nation, with drilling operations occurring throughout the state, but primarily concentrated in Kern and Los Angeles counties. A network of crude oil pipelines connects production areas to oil refineries in the Los Angeles area, the San Francisco Bay area, and the Central Valley. California oil refineries also process Alaskan and foreign crude oil received in ports in Los Angeles, Long Beach, and the San Francisco Bay area. Crude oil production in California and Alaska is in decline, and California refineries have become increasingly dependent on foreign imports. Foreign suppliers now produce more than 60 percent of the crude oil refined in California (California Energy Commission [CEC] 2024a).

Butte County

Petroleum fuels are generally purchased by individual users such as residents and employees. While no petroleum refineries are located in the County limits, there is one petroleum product terminal where petroleum is stored for distribution in the City of Chico (EIA 2024a).

Alternative Fuels

A variety of alternative fuels are used to reduce petroleum-based fuel demand. The use of these fuels is encouraged through various statewide regulations and plans, such as the Low Carbon Fuel Standard and Senate Bill (SB) 32. Conventional gasoline and diesel may be replaced, depending on the capability of the vehicle with transportation fuels including the following:

- **Hydrogen** is being explored for use in combustion engines and fuel cell electric vehicles. The interest in hydrogen as an alternative transportation fuel stems from its clean-burning qualities, its potential for domestic production, and the fuel cell vehicle's potential for high efficiency, which is two to three times more efficient than gasoline vehicles. Currently, 54 hydrogen refueling stations are located in California; There are no hydrogen fueling stations located in the BCAG region (DOE 2024).

- **Biodiesel** is a renewable alternative fuel that can be manufactured from vegetable oils, animal fats, or recycled restaurant greases. Biodiesel is biodegradable and cleaner-burning than petroleum-based diesel fuel. Biodiesel can run in any diesel engine generally without alterations; however, fueling stations have been slow to make it available. There are currently 55 biodiesel refueling stations in California, none of which are located in the BCAG region (DOE 2024).
- **Electricity** can be used to power electric and plug-in hybrid electric vehicles directly from the power grid. Electricity used to power vehicles is generally provided by the electricity grid and stored in the vehicle's batteries. Fuel cells are being explored as a way to use electricity generated onboard the vehicle to power electric motors.

Natural Gas

California

According to the CPUC, natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California gas utilities are the Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Mojave Pipeline, and Tuscarora (CPUC 2022). Because natural gas is a dispatchable energy resource that provides load when the availability of hydroelectric power generation and/or other energy sources decreases, distribution varies from year to year. The availability and distribution of hydroelectric-sourced energy, increasing renewable-source energy, and overall consumer demand shape the need for natural gas. In 2022, total California natural gas demand for industrial, residential, commercial, and electric power generation was 11,711 million therms per year.

2024 California Gas Report

The 2024 California Gas Report presents a comprehensive outlook for natural gas requirements and supplies for California through the year 2040. The report is prepared in even-numbered years, followed by a supplemental report in odd-numbered years, in compliance with California Public Utilities Commission (CPUC) Decision D.95-01-039. The projections contained in the California Gas Report are for long-term planning and do not necessarily reflect the day-to-day operational plans of the utilities (California Gas and Electric Utilities [CGEU] 2024). California natural gas demand, including volumes not served by utility systems, is expected to decrease at a rate of 0.5 percent per year from 2024 to 2045 (CGEU 2024).

Butte County

The Plan Area does not contain any active natural gas wells (DOC 2024), and therefore the member jurisdictions of BCAG do not oversee or produce any natural gas within the Plan Area.

Electricity

California

According to the California Energy Commission (CEC), California generated approximately 203,257 gigawatt-hours (GWh) of electricity in 2022. Approximately 47 percent of this electricity was sourced from natural gas, 45 percent from renewable sources, seven percent from large hydroelectric sources, and the remaining one percent was sourced from coal, oil, and other/

unspecified sources. Specifically, 35.7 percent of California's 2022 retail electric sales were served by renewable resources, including wind, solar, geothermal, biomass, and small hydroelectric (CEC 2023). Electricity is distributed through the various electric load-serving entities in California. These entities include investor-owned utilities, publicly owned load-serving entities, rural electric cooperatives, community choice aggregators, and electric service providers (CEC 2023). According to the United States (U.S.) Energy Information Administration (EIA), total retail sale of electricity within California in 2022 was 251,869,136 GWh. California electricity consumption in 2022 represented approximately 6.4 percent of total U.S. electricity consumption in 2022 (EIA 2024).

California's 2023 Integrated Energy Policy Report

Every two years, the CEC prepares the Integrated Energy Policy Report (IEPR). The 2023 IEPR highlighted the implementation of California's innovative policies and the role the State played in establishing a clean energy economy. The 2023 IEPR was adopted in February 2024 and encompasses new analyses, as well as opportunities for public participation. According to the 2023 IEPR, California's electric grid relies increasingly on clean sources of energy such as solar, wind, geothermal, hydroelectricity, and biomass (CEC 2024b).

Butte County

Pacific Gas and Electric (PG&E) is responsible for providing power supply to Butte County while complying with county, State, and federal regulations. PG&E's power system is one of the nation's largest electric and gas utilities and maintains 106,681 circuit miles of electric distribution lines and 18,466 circuit miles of interconnected transmission lines (PG&E 2024). In 2021, PG&E's power mix, including all PG&E-owned generation plus PG&E's power purchases, consisted of 48 percent renewable resources, including wind, geothermal, biomass, solar, and small hydro; 39 percent nuclear generation; 9 percent natural gas; and 4 percent large hydroelectric facilities (PG&E 2021).

PG&E's 2022 Integrated Resource Plan

PG&E's 2022 Integrated Resource Plan serves as a roadmap through 2050 that guides PG&E's efforts to supply reliable electricity in an environmentally responsible and cost-effective manner. Since the last Integrated Resource Plan cycle, PG&E has adopted a comprehensive and ambitious climate strategy and reduction goals that include achieving net zero GHG emissions by 2040 and being climate positive by 2050. PG&E plans to achieve carbon neutrality through aggressive investments in GHG-free resources, including pursuing both supply and demand side solutions, with an emphasis on the role of breakthrough load management and emerging technologies. PG&E expects to meet or exceed its goal of 70 percent Renewable Portfolio Standard by 2030 with each of its portfolio alternatives, and is on a trajectory to meet its broader, net zero energy system, climate goal by 2040 (PG&E 2022).

Energy Demand

Petroleum

The most recent data for State and county fuel consumption are further illustrated in Table 4.6-1. As shown therein, in 2022 Butte County consumed an estimated 63 million gallons of gasoline and 11 million gallons of diesel fuel (CEC 2022). As Butte County had a 2022 population of 206,148 (California Department of Finance 2024), the County's annual per capita fuel consumption in 2022

consisted of 305.6 gallons of gasoline and 53.4 gallons of diesel fuel. As shown in Table 4.6-1, each person in Butte County consumed approximately 40.4 million Btu in transportation fuel in 2022.

Table 4.6-1 2022 Annual and Daily Gasoline and Diesel Consumption

Fuel Type	California (million gallons)	Butte County (million gallons)	Butte County (billions of Btu)	Butte County Per Capita Consumption (gallons)	Butte County Per Capita Consumption (MMBtu)
Gasoline	13,640	63	6,917	305.6	33.6
Diesel	2,290	11	1,402	53.4	6.8
Total[1]	**N/A**	**N/A**	**8,319**	**N/A**	**40.4**

[1]Diesel fuel contains a greater energy density than gasoline. Therefore, quantities of diesel and gasoline fuels by volume are not additive for the purposes of estimating energy consumption.
Source: CEC 2022, California Department of Finance 2024

Natural Gas

According to the CEC, Butte County consumed approximately 37.1 million U.S. therms of natural gas in 2022 (CEC 2024c). With a population of 206,148 in 2022 (California Department of Finance 2024), Butte County's 2022 per capita natural gas consumption was approximately 180.1 U.S. therms. As shown in Table 4.5-2, Butte County's per capita natural gas consumption in 2022 was approximately 16.7 million Btu.

Table 4.5-2 2022 Annual Natural Gas Consumption

Energy Type	Butte County (U.S. Therms)	County Per Capita Consumption (U.S. Therms)	County Per Capita Consumption (MMBtu)
Natural Gas	37,135,128	180.1	16.7

Source: CEC 2024c

Electricity

According to the CEC, Butte County consumed approximately 1,444,736 GWh in 2022 (CEC 2024d). With a population of 206,148 in 2022 (California Department of Finance 2024), Butte County's 2022 per capita electricity consumption was approximately 7.0 MWh. As shown in Table 4.6-3, Butte County's per capita electricity consumption was approximately 23.9 million Btu in 2022.

Table 4.6-3 2022 Annual Electricity Consumption

Energy Type	Butte County (MWh)	County Per Capita Consumption (kWh)	County Per Capita Consumption (MMBtu)
Electricity (MWh)	1,444,736	7,008.2	23.9

Source: CEC 2024d

4.6.2 Regulatory Setting

Federal

Energy Policy and Conservation Act

Enacted in 1975, the Energy Policy and Conservation Act legislation established fuel economy standards for new light-duty vehicles (autos, pickups, vans, and sport-utility vehicles). The law placed responsibility on the National Highway Traffic and Safety Administration (NHTSA), a part of the U.S. Department of Transportation (USDOT), for establishing and regularly updating vehicle standards. The U.S. Environmental Protection Agency (USEPA) administers the Corporate Average Fuel Economy (CAFE) program, which determines vehicle manufacturers' compliance with existing fuel economy standards. Since the inception of the program, the average fuel economy for new light-duty vehicles steadily increased from 13.1 miles per gallon (mpg) for the 1975 model year to 30.7 mpg for the 2014 model year and may increase to 54.5 mpg by 2025.

On August 2, 2018, the NHTSA and USEPA, operating under the direction of the Trump Administration, proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule). This rule addresses emissions and fuel economy standards for motor vehicles and is separated into two parts as described below.

- Part One, "One National Program" (84 Federal Register 51310) revokes a waiver granted by USEPA to the State of California under Section 209 of the Clean Air Act to enforce more stringent emission standards for motor vehicles than those required by USEPA for the explicit purpose of greenhouse gas (GHG) emission reduction, and indirectly, criteria air pollutants and ozone precursor emission reduction. This revocation became effective on November 26, 2019, potentially restricting the ability of the California Air Resources Board (CARB) to enforce more stringent GHG emission standards for new vehicles and set zero emission vehicle mandates in California.
- Part Two addresses CAFE standards for passenger cars and light trucks for model years 2021 to 2026. This rulemaking proposes new CAFE standards for model years 2022 through 2026 and would amend existing CAFE standards for model year 2021. The proposal would retain the model year 2020 standards (specifically, the footprint target curves for passenger cars and light trucks) through model year 2026. The proposal addressing CAFE standards was jointly developed by NHTSA and USEPA, with USEPA simultaneously proposing tailpipe carbon dioxide standards for the same vehicles covered by the same model years.

The USEPA and NTHSA published final rules to amend and establish national carbon dioxide and fuel economy standards on April 30, 2020 (Part Two of the SAFE Vehicles Rule) (85 Federal Register 24174). On April 22, 2021, the Biden Administration formally proposed to roll back portions of the SAFE Rule, thereby restoring California's right to enforce more stringent fuel efficiency standards (NHTSA 2022). Most recently, on December 21, 2021, the NHTSA finalized rules to repeal the SAFE I Rule. The final rule concludes the SAFE I Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests. The final rule ensures the SAFE I Rule will no longer form an improper barrier to states exploring creative solutions to address their local communities' environmental and public health challenges (NHTSA 2022).

Construction Equipment Fuel Efficiency Standard

USEPA sets emission standards for construction equipment. The first federal standards (Tier 1) were adopted in 1994 for all off-road engines over 50 horsepower (hp) and were phased in by 2000. A new standard was adopted in 1998 that introduced Tier 1 for all equipment below 50 hp and established the Tier 2 and Tier 3 standards. The Tier 2 and Tier 3 standards were phased in by 2008 for all equipment. The current iteration of emissions standards for construction equipment are the Tier 4 efficiency requirements, which are contained in 40 Code of Federal Regulations Parts 1039, 1065, and 1068 (originally adopted in 69 Federal Register 38958 [June 29, 2004] and most recently updated in 2014 [79 Federal Register 46356]). Emissions requirements for new off-road Tier 4 vehicles were completely phased in by the end of 2015.

Energy Star Program

In 1992, USEPA introduced Energy Star© as a voluntary labeling program designed to identify and promote energy-efficient products to reduce GHG emissions. The program applies to major household appliances, lighting, computers, and building components such as windows, doors, roofs, and heating and cooling systems. Under this program, appliances that meet specification for maximum energy use established under the program are certified to display the Energy Star© label. In 1996, USEPA joined with the Energy Department to expand the program, which now also includes qualifying commercial and industrial buildings, as well as homes (Energy Star 2024).

State

California Energy Plan

The CEC, in collaboration with CPUC, is responsible for preparing the California Energy Action Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and maintenance of a healthy economy. The 2003 Energy Action Plan calls for the State to assist in transformation of the transportation system to improve air quality, reduce congestion, and increase efficient use of fuel supplies with the least environmental and energy costs. The Energy Action Plan identifies strategies, such as assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs and encourages urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access. In the 2005 Energy Action Plan, the CEC and CPUC updated the energy policy vision by adding dimensions to the policy areas, such as information on the emerging importance of climate change, transportation-related energy issues, and research and development activities. The CEC adopted an update to the 2005 Energy Action Plan in 2008 that supplements the earlier Energy Action Plans and examines the State's ongoing actions in the context of global climate change.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), the CEC and the California Air Resources Board (CARB) prepared and adopted in 2003 a joint agency report, *Reducing California's Petroleum Dependence*. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT. One of the performance-based goals of AB 2076 is to reduce petroleum demand to 15 percent below 2003 demand. Furthermore, in response to the CEC's 2003 and 2005 *Integrated Energy Policy Reports*, the

Governor directed the CEC to take the lead in developing a long-term plan to increase alternative fuel use.

Senate Bills 350, 100, and 1020

The Clean Energy and Pollution Reduction Act of 2015 (Senate Bill [SB] 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. This act also requires doubling of the energy efficiency in existing buildings by 2030.

Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the State's Renewables Portfolio Standard Program (last updated by SB 350). SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 44 percent by 2024, 60 percent by 2030, and 100 percent by 2045.

Signed into law on September 16, 2022, SB 1020 requires renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035, 95 percent by 2040, and 100 percent by 2045. All State agencies facilities must be served by 100 percent renewable and zero-carbon resources by 2030. SB 1020 also requires the CPUC, CEC, and CARB to issue a joint progress report outlining the reliability of the electrical grid with a focus on summer reliability and challenges and gaps. In addition, SB 1020 requires the CPUC to define energy affordability and use energy affordability metrics to develop protections, incentives, discounts, or new programs for residential customers facing hardships due to energy or gas bills.

Assembly Bill 1493: Reduction of Greenhouse Gas Emissions

AB 1493 (Chapter 200, Statutes of 2002), known as the Pavley bill, amended Health and Safety Code sections 42823 and 43018.5 requiring CARB to develop and adopt regulations that achieve maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles, light-duty trucks, and other vehicles used for noncommercial personal transportation in California.

Implementation of new regulations prescribed by AB 1493 required that the state of California apply for a waiver under the federal Clean Air Act. Although the USEPA initially denied the waiver in 2008, USEPA approved a waiver in June 2009, and in September 2009, CARB approved amendments to its initially adopted regulations to apply the Pavley standards that reduce GHG emissions to new passenger vehicles in model years 2009 through 2016. According to CARB, implementation of the Pavley regulations is expected to reduce fuel consumption while also reducing GHG emissions.

Assembly Bill 1007: State Alternative Fuels Plan

Assembly Bill (AB) 1007 (Chapter 371, Statutes of 2005) required the CEC to prepare a State plan to increase the use of alternative fuels in California. The CEC prepared the State Alternative Fuels Plan (SAF Plan) in partnership with CARB and in consultation with other federal, State, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Bioenergy Action Plan, Executive Order S-06-06

Executive Order (EO) S-06-06, April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs State agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The EO establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels in California by 2010, 40 percent by 2020, and 75 percent by 2050. EO S-06-06 also calls for the State to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 Plan and provides a more detailed action plan to achieve the following goals:

- Increase environmentally and economically sustainable energy production from organic waste
- Encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications
- Create jobs and stimulate economic development, especially in rural regions of the state
- Reduce fire danger, improve air and water quality, and reduce waste

California Building Code

The California Code of Regulations (CCR) Title 24 is referred to as the California Building Code (CBC). It consists of a compilation of several distinct standards and codes related to building construction including plumbing, electrical, interior acoustics, energy efficiency, and handicap accessibility for persons with physical and sensory disabilities. The current iteration is the 2022 Title 24 standards. The CBC's energy-efficiency and green building standards are outlined as follows.

PART 6 – BUILDING ENERGY EFFICIENCY STANDARDS (CALIFORNIA ENERGY CODE)

CCR Title 24, Part 6 contains the 2022 Building Energy Efficiency Standards (or California Energy Code) for new residential and non-residential buildings, which became effective on January 1, 2023. This code, originally enacted in 1978, builds on California's technology innovations, encouraging inclusion of market-ready electric products in new construction, such as heat pumps for climate control and water heating, to reduce California's energy demand. New construction and major renovations must demonstrate their compliance with the current code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the CEC. The 2022 Building Energy Efficiency Standards focus on four key areas: 1) encouraging electric heat pump technology and use; 2) Establishing electric-ready requirements when natural gas is installed; 3) Expanding solar photovoltaic (PV) system and battery storage standards; and 4) and strengthening ventilation standards to improve indoor air quality. The 2022 Building Energy Efficiency Standards are the applicable building energy efficiency standards for the proposed project because they became effective on January 1, 2023.

PART 11 – CALIFORNIA GREEN BUILDING STANDARDS

The California Green Building Standards, referred to as CALGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water

conservation, material conservation, and internal air contaminants. The 2022 CALGreen includes mandatory minimum environmental performance standards for all ground-up new construction of residential and non-residential projects including: increasing the number of parking spaces that must be prewired for electric vehicle chargers in residential development; requiring residential development to adhere to the Model Water Efficient Landscape Ordinance; and requiring more appropriate sizing of HVAC ducts. It also includes voluntary tiers with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory CALGreen standards and may adopt additional amendments for stricter requirements.

Local

Butte County General Plan

The Butte County General Plan 2040 was adopted on March 28, 2023. The General Plan includes the following goals and policies regarding energy consumption:

Goal H-7: Promote energy conservation.

Policy H-P7.1: Continue to implement state energy efficiency standards.

Policy H-P7.2: Provide energy conservation assistance to low-income households.

Goal COS-3: Promote a renewable and resilient energy supply that relies on carbon free electricity or other low-carbon, clean energy sources.

Policy COS-P3.1: The expansion and increased efficiency of hydroelectric power plants in the county is encouraged, provided that such plants can be expanded and that significant adverse environmental impacts associated with such plants can be successfully mitigated.

Policy COS-P3.2: The development of renewable energy sources in the county shall be encouraged, provided that such fuel sources can be built or expanded and that significant adverse environmental impacts associated with such development can be successfully mitigated.

Policy COS-P3.3: The County supports the introduction and implementation of Butte Choice Energy, the County's community choice aggregation program.

Policy COS-P3.5: The County supports efforts to increase renewable and carbon-free energy generation, including wind, solar, and biomass, and to ensure customer access to such renewable energy.

Policy COS-P3.6: Utility lines shall be constructed along existing utility corridors wherever feasible.

Policy COS-P3.7: Wind power generation facilities, solar power generation facilities, and other alternative energy facilities shall be encouraged in all General Plan land use designations, consistent with zoning provided that significant adverse environmental impacts associated with such development can be successfully mitigated. All new proposed energy projects shall be compatible with the Military Operations Areas (MOAs) shown on Figure LU-4.

Goal COS-4: Conserve energy and fuel resources by increasing energy efficiency.

Policy COS-P4.1: The County shall continue efforts to promote energy conservation and efficiency opportunities for all residents, building/property owners, and renters, including support and promotion of programs for lower- income and disadvantaged populations.

Policy COS-P4.2: The County shall continue efforts to promote energy conservation and efficiency opportunities for all nonresidential uses, including County facilities, office space, commercial space, and industrial space.

Policy COS-P4.5: The Zoning Ordinance shall incorporate shading requirements for new parking lots as appropriate to relieve the potential for heat islands.

Policy COS-P4.7: Site and structure designs for new development projects shall maximize energy efficiency.

City General Plans

Local planning policies related to energy use are established in each jurisdiction's general plan, generally in the Conservation Element or equivalent chapter. The Chico General Plan Sustainability Element contains policies aimed at increasing energy efficiency and reducing non-renewable energy use, such as Policy SUS-5.1, which calls for energy retrofit improvements on existing buildings, and Policy SUS-5.2, which supports energy efficient design measures in new projects (City of Chico 2017). The Biggs General Plan also contains Policy PFS-5.4, which requires the provision of energy that meets portfolio requirements and Action ED-1.1.4, which encourages the pursuit of clean energy uses (City of Biggs 2014). The Gridley General Plan Conservation Element contains Conservation Goals 6, 7, and 8 specifically related to energy use and renewable energy generation (City of Gridley 2009). Finally, the Town of Paradise General Plan includes goals, objectives, and policies that promote energy conservation in the Open Space, Conservation, and Energy Element (Town of Paradise 2008).

Butte County Climate Action Plan

The Butte County Climate Action Plan (CAP) was adopted on December 14, 2021 in an effort to reduce greenhouse gas emissions and address climate change in the unincorporated county. The 2021 CAP is an update of the 2014 CAP, providing updated information, an expanded set of GHG reduction strategies, and a planning horizon out to 2050. The CAP provides goals, policies, and programs aimed to address climate change adaptation and reduce GHG emissions goals as identified in AB 32, SB 32, and SB 375. A key goal of the CAP is to reduce per-capita emissions to 6.0 $MTCO_2e$ by 2030 and 2.0 MT CO_2e by 2050. In order to achieve these strategies, the 2021 CAP includes goals, strategies, and recommended actions aimed at reducing GHG emissions. The 15 strategies identified in the 2021 CAP are organized into 6 sectors (energy, water and wastewater, transportation and land use, solid waste, agriculture, and government operations).

City of Chico 2021 Climate Action Plan Update

The City of Chico developed the 2021 Climate Action Plan Update to outline strategies for a substantial reduction of GHG emissions generated by local activities. The plan guides the growth of Chico and contains specific actions to reduce GHG emissions and achieve the City's target of 40% below 1990 levels by 2030 and carbon neutrality by 2045, consistent with SB 32 and EO B-55-18 targets (City of Chico 2021).

City of Oroville Community Climate Action Plan

The City of Oroville adopted their Community Climate Action Plan on March 15, 2015. The City's CAP included a citywide target to reduce GHG emissions from community activities to 11 percent below 2010 levels by 2020, consistent with AB 32 targets. The CAP was adopted prior to implementation of SB 32 and the 2022 Scoping Plan. Therefore, the CAP does not include forecasts or emissions targets beyond 2020. The City's CAP outlines a plan to address and adapt to potential economic, environmental, and social effects of climate change. Transportation is the largest source of community emissions with approximately 48 percent of all emissions originating from this sector. The Community CAP includes actions for reducing emissions by focusing on energy efficiency and renewable energy, land use and transportation, waste reduction, water conservation, and trees and agriculture (City of Oroville 2015).

4.6.3 Impact Analysis

a. Methodology and Thresholds of Significance

Appendix G of the *CEQA Guidelines* identifies the following criteria for determining whether a project's impacts would have a significant impact to energy resources. Because the RTP/SCS is a regional plan and not a specific and single construction project, BCAG has chosen to address energy consumption a regional level rather than project level. This is consistent with the programmatic nature of the EIR. For the purposes of this EIR, implementation of the RTP/SCS would have a significant impact if it would:

1. Result overall in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation:
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

b. Project Impacts and Mitigation Measures

The following section discusses potential impacts and mitigation measures that may be associated with transportation projects and the land use scenario contained within the proposed 2024 RTP/SCS. Due to the programmatic nature of the proposed 2024 RTP/SCS, a precise, project-level analysis of the specific impacts associated with individual transportation and land use projects is not possible at this time. In general, however, implementation of proposed transportation improvement projects and future projects under the land use scenario envisioned by the proposed 2024 RTP/SCS could result in the impacts as described in the following section:

Threshold 1:	Result in significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation

Impact E-1 TRANSPORTATION IMPROVEMENT PROJECTS AND THE LAND USE SCENARIO ENVISIONED BY THE PROPOSED 2024 RTP/SCS WOULD NOT RESULT IN AN WASTEFUL, INEFFICIENT OR UNNECESSARY CONSUMPTION OF ENERGY RESOURCES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Construction and maintenance of the proposed 2024 RTP/SCS projects would result in short-term consumption of energy resulting from the use of construction equipment and processes. In addition, roadway and transit construction materials, such as asphalt, concrete, surface treatments, steel, rail ballast, as well as building materials, require energy to be produced, and would likely be used in

projects that involve new construction or replacement of older materials, as well as construction of future infill projects envisioned by the proposed 2024 RTP/SCS. The California Green Building Standards Code (CALGreen Code) includes specific requirements related to recycling, construction materials, and energy efficiency standards, which would apply to construction of roadway and transit improvement projects, as well as future infill envisioned by the proposed 2024 RTP/SCS and would help to minimize waste and energy consumption. All construction and maintenance conducted pursuant to the proposed 2024 RTP/SCS, or as a result of improvements made by the proposed 2024 RTP/SCS, would be required to comply with the CALGreen Code. As a result, construction would not result in the wasteful, inefficient, or unnecessary consumption of energy resource or increased reliance on fossil fuels.

PG&E is the utility provider for the BCAG region, and pursuant to CPUC regulations, utilities such as PG&E must utilize a long-term planning process to plan for increased energy demand in the future with its publication of ten-year integrated resource plans. The most recent PG&E plan, titled PG&E's 2022 Integrated Resource Plan, details planned projects between 2022 and 2050 that aim to ensure compliance with North American Electric Reliability Corporation standards, improve transmission system access for renewable generation to meet Renewable Portfolio Standard goals and targets, improve service reliability for end users and coordinate long-term plans for PG&E's transmission system (PG&E 2022). Renewable energy options would be incorporated in the proposed 2024 RTP/SCS projects as future transportation improvements and implementation of the land use scenario envisioned by proposed 2024 RTP/SCS rely on PG&E which has integrated a reduction in reliance on fossil fuels and energy efficiency as part of its standards and goals.

Land Use Changes

The proposed 2024 RTP/SCS envisions a regional land use scenario that promotes infill development in existing commercial corridors in combination with increased funding for transit service and improved multimodal infrastructure. Infill projects would reduce VMT and energy use because they would locate people closer to existing goods and services, thereby resulting in shorter vehicle trips and/or promoting walking or biking, and they would locate people closer to existing transportation hubs, thereby encouraging the use of alternative modes of transit (e.g., buses) and resulting in fewer vehicle trips. Operation of future infill projects would increase overall demand for energy beyond existing demand; however, such development would not require unusual, unnecessary, or wasteful amounts of energy. Future infill projects are anticipated to be constructed using standard building practices. These projects would also be subject to the CALGreen Code and Title 24 of the California Energy Code, which set forth specific energy efficiency requirements related to design, construction methods and materials. Therefore, the land use scenario envisioned under the proposed 2024 RTP/SCS would not use energy in a wasteful, inefficient, or unnecessary manner.

Transportation Improvement Projects

Region-wide VMT and total energy use would increase over time as the result of regional socioeconomic growth. Daily operation of the BCAG region's transportation system uses energy in the form of fuel consumed by propulsion of passenger vehicles (automobiles, vans, and trucks) and transit vehicles (buses and trains). Some roadway improvements included in the proposed 2024 RTP/SCS would increase vehicle capacity, allowing a greater number of vehicles to use County facilities. However, 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 growth and employment growth. It should be noted that

population growth and an increase in VMT would occur within the region regardless of whether the proposed 2024 RTP/SCS is implemented. As a result, energy consumption as it relates to vehicles would increase beyond the 2022 baseline in any scenario. The 2024 RTP/SCS would help to minimize energy consumption by improving the overall efficiency of the transportation system. In addition, many proposed 2024 RTP/SCS projects (e.g., bikes lanes, investments in electric-powered buses) as well as the continued encouragement of an infill land use pattern would improve the availability of alternative transportation modes, help reduce congestion, and resultant harmful air quality emissions in the plan area. Generally, the availability of these alternative modes would be expected to reduce overall motor vehicular trips, VMT, and associated energy consumption.

The transportation improvements proposed under the proposed 2024 RTP/SCS would result in a more efficient transit system. The proposed 2024 RTP/SCS also would result in greater availability of public transit and other alternative modes of transportation, such as bicycling, which does not consume fuel energy and also reduces traffic congestion. For instance, there are projects planned by the proposed 2024 RTP/SCS in Chico, Oroville, and other municipalities which would construct Class II and Class III bicycle paths and pedestrian facilities. Other projects within the proposed 2024 RTP/SCS would involve the construction of bicycle and pedestrian paths throughout the BCAG region. These specific projects support alternative energy use by providing County residents with non-motorized transportation options. The reduction in overall congestion resulting from these service level improvements would reduce fuel consumption and promote fuel efficiency. As mentioned previously, improvements to State fuel efficiency standards for vehicles and State mandated increases in the supply and use of alternative transportation fuels would further reduce fuel consumption, such as implementation of an electric vehicle charging station plan. In addition, the proposed 2024 RTP/SCS includes other transportation projects which are subject to the State's Alternative Fuels Plan, thereby encouraging alternative energy use.

New transportation facilities that require energy for operation, such as signal lighting, roadway or parking lot lighting, and electronic equipment would increase energy demand. New landscaping irrigation would also increase energy demand through water pumping and treatment. However, energy consumption would not be unnecessary or wasteful, as all lighting, signage and irrigation systems would comply with applicable energy efficiency requirements within the California Building Code. Therefore, the transportation improvements projects included in the proposed 2024 RTP/SCS would not result in inefficient, unnecessary, or wasteful consumption of energy resources. This impact would be less than significant.

Mitigation Measures

No mitigation is required.

Threshold 2:	Would the project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Impact E-2 THE 2024 RTP/SCS WOULD NOT CONFLICT WITH OR OBSTRUCT A STATE OR LOCAL PLAN FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY. THIS IMPACT WOULD LESS THAN SIGNIFICANT.

As discussed in Section 4.6.2, *Regulatory Setting*, several state plans, the County's adopted 2040 General Plan, local General Plans, the County's Climate Action Plan, and local Climate Action Plans include energy conservation and energy efficiency strategies intended to enable the State and the County to achieve GHG reduction and energy conservation goals. A full discussion of the 2024 RTP/SCS's consistency with GHG reduction plans is included in Section 4.6, *Greenhouse Gas*

Emissions. As shown in Table 4.6-4, the 2024 RTP/SCS would be consistent with State renewable energy and energy efficiency plans.

Table 4.6-4 Consistency with State Renewable Energy and Energy Efficiency Plans

Renewable Energy or Energy Efficiency Plan	Proposed Project Consistency
California Energy Plan. The plan identifies several strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs, as well as encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.	**Consistent**. The 2024 RTP/SCS includes transit service program funding, rehabilitation, and other improvements; the installation of electric bus and chargers; new park and rides; additional bus stops; and construct new pedestrian and bicycle routes. Additionally, the 2024 RTP/SCS land use scenario concentrates the forecasted growth in population and employment in the region in urban areas and corridors of the County. These 2024 RTP/SCS projects would encourage urban design that reduces VMT and accommodates pedestrian and bicycle access as well as facilitate infrastructure for zero-emission vehicles. Therefore, the 2024 RTP/SCS would not conflict with or obstruct implementation of the California Energy Plan.
Assembly Bill 2076: Reducing Dependence on Petroleum. Pursuant to AB 2076, the CEC and CARB prepared and adopted a joint-agency report, *Reducing California's Petroleum Dependence,* in 2003. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT. One of the performance-based goals of AB 2076 is to reduce petroleum demand to 15 percent below 2003 demand.	**Consistent.** The 2024 RTP/SCS includes transit service program funding, rehabilitation, and other improvements; the installation of electric bus and chargers; new park and rides; additional bus stops; and construct new pedestrian and bicycle routes. All of these projects would encourage increased use of alternative modes of transportation and decrease the use of passenger vehicles, facilitate the reduction of petroleum demand through increasing the use of alternative fuels, and would not conflict with or obstruct implementation of AB 2076 and *Reducing Dependence on Petroleum*.
California Renewable Portfolio Standard. California's RPS obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent total retail sales of electricity from renewable energy sources by 2020, 60 percent by 2030, and 100 percent by 2045.	**Consistent.** Electricity in the County is provided by PG&E. PG&E is required to generate electricity that would increase renewable energy resources to 60 percent by 2030 and 100 percent by 2045. In 2021, PG&E's power mix included 86 percent carbon-free sources (PG&E 2021). Because PG&E would provide electricity service to 2024 RTP/SCS projects, the 2024 RTP/SCS would not conflict with or obstruct implementation of the California Renewable Portfolio Standard.
AB 1493: Reduction of Greenhouse Gas Emissions. AB 1493 requires CARB to develop and adopt regulations that achieve maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles, light-duty trucks, and other vehicles used for noncommercial personal transportation in California.	**Consistent.** Vehicles used in the County would be subject to the regulations adopted by CARB pursuant to AB 1493. Therefore, the 2024 RTP/SCS would not conflict with or obstruct implementation of AB 1493.
AB 1007: State Alternative Fuels Plans. The State Alternative Fuels Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.	**Consistent**. The 2024 RTP/SCS includes projects that would install electric bus and passenger vehicle chargers. Therefore, the 2024 RTP/SCS would facilitate the use of alternative fuels and would not conflict with or obstruct implementation of AB 1007.

Renewable Energy or Energy Efficiency Plan	Proposed Project Consistency
Bioenergy Action Plan, Executive Order S-06-06. The EO establishes the following targets to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels in California by 2010, 40 percent by 2020, and 75 percent by 2050.	**Consistent**. 2024 RTP/SCS projects would not interfere with or obstruct the production of biofuels in California. Vehicles used in the County would be fueled by gasoline and diesel fuels blended with ethanol and biodiesel fuels as required by CARB regulations. Therefore, the 2024 RTP/SCS would not conflict with or obstruct implementation of the Bioenergy Action Plan.
Title 24, California Code of Regulations – Part 6 (Building Energy Efficiency Standards) and Part 11 (CALGreen). The 2022 Building Energy Efficiency Standards build upon prior standards and focus on four key areas: 1) encouraging electric heat pump technology and use; 2) Establishing electric-ready requirements when natural gas is installed; 3) Expanding solar photovoltaic (PV) system and battery storage standards; and 4) and strengthening ventilation standards to improve indoor air quality. The CALGreen Standards establish green building criteria for residential and nonresidential projects. CALGreen Standards includes mandatory minimum environmental performance standards for all ground-up new construction of residential and non-residential projects including: increasing the number of parking spaces that must be prewired for electric vehicle chargers in residential development; requiring residential development to adhere to the Model Water Efficient Landscape Ordinance; and requiring more appropriate sizing of HVAC ducts. .	**Consistent**. 2024 RTP/SCS projects would be required to comply with Title 24 of the California Code of Regulations. Therefore, the 2024 RTP/SCS would not conflict with or obstruct implementation of the Title 24 standards.

The Butte County 2040 General Plan includes goals and policies that encourage energy conservation and energy efficiency. The Butte County Climate Action Plan includes various goals and policies that employ energy conservation and efficiency measures through an array of strategies. Local General Plans and local Climate Action Plans include similar goals and policies. As shown in Table 4.6-5, the 2024 RTP/SCS would be consistent with the energy conservation and efficiency strategies contained in the Butte County 2040 General Plan, local General Plans, Butte County Climate Action Plan, and local Climate Action Plans.

Table 4.6-5 Consistency with the General Plans and Climate Action Plans

Energy Efficiency Goal, Policy, or Strategy	Proposed Project Consistency
Butte County 2040 General Plan	
Goal H-7. Promote energy conservation. *Policy H-P7.1.* Continue to implement state energy efficiency standards. *Policy H-P7.2.* Provide energy conservation assistance to low-income households.	**Consistent**. 2024 RTP/SCS projects would be required to comply with Title 24 of the California Building Code and the California Energy Code, which would increase energy efficiency and energy conservation.
Goal COS-3. Promote a renewable and resilient energy supply that relies on carbon free electricity or other low-carbon, clean energy sources. *Policy COS-P3.2*. The development of renewable energy sources in the county shall be encouraged, provided that such fuel sources can be built or expanded and that significant adverse environmental impacts associated with such development can be successfully mitigated.	**Consistent.** 2024 RTP/SCS projects would be served by PG&E, which is required to generate electricity that would increase renewable energy resources to 60 percent by 2030 and 100 percent by 2045. In 2021, PG&E's power mix included 86 percent carbon-free sources (PG&E 2021).

Energy Efficiency Goal, Policy, or Strategy	Proposed Project Consistency
Policy COS-P3.5. The County supports efforts to increase renewable and carbon-free energy generation, including wind, solar, and biomass, and to ensure customer access to such renewable energy. *Policy COS-P3.7*. Wind power generation facilities, solar power generation facilities, and other alternative energy facilities shall be encouraged in all General Plan land use designations, consistent with zoning provided that significant adverse environmental impacts associated with such development can be successfully mitigated. All new proposed energy projects shall be compatible with the Military Operations Areas (MOAs) shown on Figure LU-4.	
Goal COS-4. Conserve energy and fuel resources by increasing energy efficiency. *Policy COS-P4.1*. The County shall continue efforts to promote energy conservation and efficiency opportunities for all residents, building/property owners, and renters, including support and promotion of programs for lower-income and disadvantaged populations. *Policy COS-P4.2*. The County shall continue efforts to promote energy conservation and efficiency opportunities for all nonresidential uses, including County facilities, office space, commercial space, and industrial space. *Policy COS-P4.7*. Site and structure designs for new development projects shall maximize energy efficiency.	**Consistent**. 2024 RTP/SCS projects would be required to comply with Title 24 of the California Building Code and the California Energy Code. In addition, the 2024 RTP/SCS includes transit service program funding, rehabilitation, and other improvements; the installation of electric bus and chargers; new park and rides; additional bus stops; and construct new pedestrian and bicycle routes; which would conserve energy and fuel resources.
Chico General Plan	
Policy SUS-5.1: Energy Efficient Retrofits. Promote energy efficient retrofit improvements in existing buildings. **Policy SUS-5.2: Energy Efficient Design.** Support the inclusion of energy efficient design and renewable energy technologies in public and private projects.	**Consistent.** 2024 RTP/SCS projects would be required to comply with Title 24 of the California Building Code and the California Energy Code, which would increase energy efficiency and energy conservation.
Biggs General Plan	
Policy PFS-5.4: Electric Power Portfolio. Continue to provide customers with a reliable energy source mix that is price competitive and meets portfolio mix requirements.	**Consistent.** 2024 RTP/SCS projects would be served by PG&E, which is required to generate electricity that would increase renewable energy resources to 60 percent by 2030 and 100 percent by 2045. In 2021, PG&E's power mix included 86 percent carbon-free sources (PG&E 2021).
Gridley General Plan, Conservation Element	
Goal 6: To encourage local generation and use of renewable energy. **Goal 7:** To encourage energy efficient site planning and building construction. **Goal 8:** To increase energy efficiency in City operations.	**Consistent.** 2024 RTP/SCS projects would be required to comply with Title 24 of the California Building Code and the California Energy Code, which would increase energy efficiency and energy conservation. Additionally, 2024 RTP/SCS projects would be served by PG&E, which currently provides 86 percent carbon free energy (PG&E 2021).
Paradise General Plan	
Goal OCEG-10: Maximize Paradise's energy efficiency. **Objective OCE0-15:** Throughout the life of the General Plan, encourage energy conservation in building design, construction techniques, and in the overall lifestyle of Paradise citizens.	**Consistent.** 2024 RTP/SCS projects would be required to comply with Title 24 of the California Building Code and the California Energy Code, which would increase energy efficiency and energy conservation.

Energy Efficiency Goal, Policy, or Strategy	Proposed Project Consistency
Butte County Climate Action Plan	
Energy Strategy 2. Continue efforts to promote energy conservation and efficiency opportunities for all nonresidential uses in the unincorporated county, including County facilities, office space, commercial space, and industrial space.	**Consistent.** 2024 RTP/SCS projects would be required to comply with Title 24 of the California Code of Regulations. Therefore, the 2024 RTP/SCS would not conflict with or obstruct implementation of the CALGreen standards.
Transportation and Land Us Strategy 6. Pursue Transportation Demand Management (TDM) strategies, implemented through local land use decisions and through partnerships with local employers, that reduce vehicle miles traveled (VMT) countywide.	**Consistent.** The 2024 RTP/SCS includes transit service program funding, rehabilitation, and other improvements; the installation of electric bus and chargers; new park and rides; and additional bus stops; which would reduce VMT countywide.
Chico 2021 Climate Action Plan Update	
Measure T-1: : Improve active transportation infrastructure to achieve greater than 6% bicycle mode share by 2030 and 12% bicycle mode share by 2045**.** **Measure T-3:** Improve shared mobility and transit programs and infrastructure.	**Consistent.** The 2024 RTP/SCS includes transit service program funding, rehabilitation, and other improvements; the installation of electric bus and chargers; new park and rides; and additional bus stops; which would expand the use of public transit and shared mobility options.
Oroville Community Climate Action Plan	
BE-1. Green Building Ordinance. Achieve 15% less energy use than the 2013 Title 24 requirements in new development **BE-4. Energy Efficient Lighting Standards.** Reduce electricity consumption with energy-efficient lighting **BE-5. Solar Installations for New Development.** Implement solar energy installation requirements for new buildings to increase renewable energy generation **BE-7. Local Renewable Energy Development.** Expand local renewable energy production to meet at least 25% of the City's municipal electricity demand	**Consistent.** 2024 RTP/SCS projects would be required to comply with Title 24 of the California Code of Regulations. Therefore, the 2024 RTP/SCS would not conflict with or obstruct implementation of the CALGreen standards and would support energy-efficient building and lighting features.
LUT-6. Electric Vehicle (EV) Charging Stations. Expand public charging facilities to promote electric vehicle usage within the city and greater Butte County area	**Consistent.** 2024 RTP/SCS projects include electric vehicle infrastructure, including new electric buses and chargers.

The 2024 RTP/SCS would be consistent with State energy efficiency plans, the County's adopted energy conservation and efficiency strategies contained in its 2040 General Plan and Climate Action Plan, and local General Plan and Climate Action Plan energy efficiency policies. As described under Impact E-1, construction and operation of the 2024 RTP/SCS would be required to comply with relevant provisions of CALGreen and Title 24 of the California Energy Code. Therefore, this impact would be less than significant, and no mitigation is required.

Mitigation Measures

No mitigation is required.

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4.7 Noise

This section analyzes noise impacts from buildout of the 2024 RTP/SCS. Impacts related to noise from construction, building operations, traffic, and rail operations are addressed.

4.7.1 Setting

a. Noise

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (California Department of Transportation [Caltrans] 2013).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz and less sensitive to frequencies around and below 100 Hertz (Kinsler, et. al. 1999). Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease.

Human perception of noise has no simple correlation with sound energy. The perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (eight times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (or half) as loud.

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). The propagation of noise is also affected by the intervening ground, known as ground absorption. A hard site, such as a parking lot or smooth body of water, receives no additional ground attenuation and the changes in noise levels with distance (drop-off rate) result from simply the geometric spreading of the source. An additional ground attenuation value of 1.5 dBA per doubling of distance applies to a soft site (e.g., soft dirt, grass, or scattered bushes and trees) (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this “shielding” depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line-of-sight will provide at least a 5 dBA reduction in noise levels at the receiver. Structures can substantially reduce exposure to noise

as well. Modern building construction generally provides an exterior-to-interior noise level reduction of at least 25 dBA with closed windows.

The impact of noise is not a function of loudness alone. The time of day when noise occurs, and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent noise level (L_{eq}); it considers both duration and sound power level. L_{eq} is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over time. Typically, L_{eq} is summed over a one-hour period. L_{max} is the highest root mean square (RMS) sound pressure level within the sampling period, and L_{min} is the lowest RMS sound pressure level within the measuring period.

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (DNL), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours; it is also measured using Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013). Noise levels described by DNL and CNEL usually differ by about 1 dBA. The relationship between the peak-hour L_{eq} value and the DNL/CNEL depends on the distribution of traffic during the day, evening, and night. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 dBA, while areas near arterial streets are in the 50 to 60-plus CNEL range. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

b. Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of Hz. The frequency of a vibrating object describes how rapidly it oscillates. Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations diminish much more rapidly than low frequencies, so low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances (Caltrans 2020). When a building is impacted by vibration, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under rare circumstances, the ground-to-foundation coupling may actually amplify the vibration level due to structural resonances of the floors and walls.

Vibration amplitudes are usually expressed in inches per second (in/sec) peak particle velocity (PPV). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of blasting vibration and other construction activity because it is related to the stresses that are experienced by buildings (Caltrans 2020).

4.7.2 Regulatory Setting

a. Federal

There are no federal noise requirements or regulations that apply directly to the implementation of the 2024 RTP/SCS. However, there are federal regulations that influence the audible landscape, especially for projects where federal funding is involved. For example, the FHWA requires abatement of highway traffic noise for highway projects through rules in the Code of Federal Regulations (23 CFR Part 772). Each agency recommends thorough noise and vibration assessments through comprehensive guidelines for any highway, mass transit, or high-speed railroad projects that would pass by residential areas.

b. State

Title 24 of the California Code of Regulations codifies Sound Transmission Control requirements establishing uniform minimum noise insulation performance standards for new hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings. Specifically, Section 1207.2 in Title 24 states that interior noise levels attributable to exterior noise sources shall not exceed 45 dBA CNEL/L_{dn} in any habitable room of a new building.

While there are no State standards for vibration, Caltrans establishes vibration risk for structures. For continuous, frequent, and intermittent vibration, Caltrans considers the architectural damage risk level to be somewhere between 0.08 and 0.5 inches per second (in/sec) PPV depending on the type of building that is affected (Caltrans 2020).

c. Local Regulations

Butte County and the incorporated cities of Chico, Oroville, Gridley, Biggs, and Town of Paradise have established policies and regulations concerning noise that could adversely affect noise-sensitive land uses in their respective General Plan Noise Elements and legal codes. The Noise Elements establish objectives and implements policies intended to limit community exposure to excessive noise levels. Legal codes typically identify noise limits and regulations for code enforcement purposes. Noise sources such as roadways, rails and airports are identified in each Noise Element. Noise land use compatibility guidelines listed by the California Governor's Office of Planning and Research are typically used for reference.

4.7.3 Impact Analysis

a. Methodology and Thresholds of Significance

Pursuant to the *CEQA Guidelines*, potentially significant noise impacts would result if the project would:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Generate excessive groundborne vibration or groundborne noise levels
- For a project located within the vicinity of a private airstrip or 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

This SEIR augments the previously certified 2020 SEIR for the 2020 RTP/SCS and analyzes only the changes in the 2020 RTP/SCS or changes in circumstances under which the 2024 RTP/SCS projects would be implemented since certification of the previous 2020 SEIR. Therefore, for issue areas where impacts would be similar to or less than the impact level identified in the previous 2020 EIR, no further analysis is warranted and Threshold 3 is addressed in Section 4.11, *Other Environmental Issue Areas Analyzed*. As described therein, there are three airports within Butte County (Paradise Airport, Chico Municipal Airport, and Ranchaero Airport), but the 2024 RTP/SCS would not expose people to excessive airport noise.

Since this document analyzes noise impacts on a program level only, project-level analyses for various projects within the 2024 RTP/SCS will be necessary in the future. The project proponent or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures prior to construction. The analysis of potential impacts should include an assessment of all applicable standards, including those established by local jurisdictions, counties, the state of California, and federal agencies, where appropriate.

Local Thresholds

Butte County and the incorporated cities within the County each have their own noise standards. Noise standards for the County and the cities typically apply land-use compatibility criteria of 60-65 dBA L_{dn} as being the normally acceptable range for new residential developments, and interior noise criteria of 45 dBA L_{dn}.

Threshold 1:	Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact NOI-1 CONSTRUCTION OF INDIVIDUAL PROJECTS FACILITATED BY THE 2024 RTP/SCS MAY TEMPORARILY GENERATE INCREASED NOISE LEVELS RELATIVE TO THE 2020 RTP/SCS, POTENTIALLY AFFECTING NEARBY NOISE-SENSITIVE LAND USES. CONSTRUCTION NOISE MAY STILL EXCEED NOISE STANDARDS AND MITIGATION WOULD REDUCE IMPACTS TO A LESS THAN SIGNIFICANT LEVEL.

The operation of equipment during the construction of roadway infrastructure and development projects envisioned by the 2024 RTP/SCS would result in temporary increases in noise in the immediate vicinity of individual construction sites. As shown in Table 4.7-1, average noise levels associated with the use of heavy equipment at construction sites can range from about 76 to 101 dBA at 50 feet from the source, depending upon the types of equipment in operation at any given time and the phase of construction. The highest noise levels generally occur during excavation and foundation development, which involve the use of such equipment as pile driving, backhoes, bulldozers, shovels, and front end loaders.

Table 4.7-1 Typical Noise Levels for Construction Equipment

Equipment	Estimated Noise Levels at Nearest Sensitive Receptors (dBA L_{eq})		
	25 feet	50 feet	100 feet
Air Compressor	86	80	74
Backhoe	86	80	74
Concrete Mixer	91	85	79
Dozer	91	85	79
Grader	91	85	79
Jack Hammer	94	88	82
Loader	86	80	74
Paver	91	85	79
Pile-drive (Impact)	107	101	95
Pile-driver (Sonic)	101	95	89
Roller	91	85	79
Saw	82	76	70
Scarified	89	83	77
Scraper	91	85	79
Truck	90	84	78

Source: FTA 2018

Noise generated by construction activity would vary depending on the project and intensity of equipment use. Roadway widening projects such as the SR 32, Eaton Road, Midway, East 20th Street, or Esplanade widening projects, would likely require the operation of many pieces of heavy-duty equipment that generate high noise levels. Alternatively, repainting/restriping such as that included in the Central Gridley Pedestrian Connectivity and Equal Access Project and the Highway Safety Improvement Program, would typically be less intense requiring minimal, if any, use of heavy equipment. This conservative analysis assesses construction noise based on the operation of heavy-duty equipment. Noise levels from point sources such as construction sites typically attenuate at a rate of about 6 dBA per doubling of distance. Therefore, areas within 800 feet of construction sites with heavy-duty equipment may be exposed to noise levels exceeding 65 dBA. Impacts related to construction noise would remain significant but mitigable.

Mitigation Measures

The following mitigation measure included in the 2020 RTP/SCS would apply to the 2024 RTP/SCS.

N-1 Construction Noise Reduction

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for transportation projects. Butte County and cities in the County should implement these measures originally required by the 2020 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

a) **Equipment Staging Areas.** Sponsor agencies of 2024 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.

b) **Electrically-Powered Tools and Facilities.** If a particular project within 800 feet of sensitive receptors requires pile driving, the sponsor agency in which this project is located shall require the use of pile drilling techniques instead, where feasible. This shall be accomplished through the placement of conditions on the project during its individual environmental review.

c) **Smart Back-up Alarms.** Sponsor 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).

d) **Additional Noise Attenuation Techniques.** Sponsor agencies shall ensure that impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction be hydraulically or electrical powered wherever feasible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatically powered tools is unavoidable, use of an exhaust muffler on the compressed air exhaust can lower noise levels from the exhaust by up to about 10 dBA. When feasible, external jackets on the impact equipment can achieve a reduction of 5 dBA. Whenever feasible, use quieter procedures, such as drilling rather than impact equipment operation.

e) **Stationary Noise Sources.** Locate stationary noise sources as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors will be adequately muffled.

Significance After Mitigation

Mitigation Measure N-1 would ensure that construction noise impacts would not be substantial through a variety of measures to minimize exposure of existing receptors. If a project is located near a sensitive receptor, the project sponsor would ensure that noise reduction measures are implemented during construction that would reduce noise levels below local and/or Caltrans standards. With implementation of local noise control requirements and Mitigation Measure N-1, impacts would remain less than significant, consistent with the findings for the 2020 RTP/SCS EIR.

Threshold 1:	Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance?

Impact NOI-2 IMPLEMENTATION OF THE 2024 RTP/SCS MAY INCREASE OPERATIONAL NOISE SOURCES INCLUDING TRAFFIC-GENERATED NOISE LEVELS ON HIGHWAYS AND ROADWAYS, RELATIVE TO THE 2020 RTP/SCS, WHICH COULD EXPOSE EXISTING SENSITIVE RECEPTORS TO NOISE IN EXCESS OF NORMALLY ACCEPTABLE LEVELS. IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT WITH MITIGATION.

Traffic Noise

Roadways and traffic noise are the most prevalent source of ambient noise in Butte County (Butte County General Plan 2030 Health and Safety Element 2012). The noise generated from vehicles using roads within the unincorporated areas of the county and within the incorporated cities is

governed primarily by the number of vehicles, type of vehicles (mix of automobiles, trucks, and other large vehicles), and speed. Major traffic noise sources include State Routes 99, 70, 32, 149, 162, and 191. As shown in the noise contours located in Appendix C of the General Plan, nearly all of these roadways reach noise levels exceeding 65 dBA CNEL within 100 feet from the centerline of the freeway due to both the high traffic volumes experienced and the high speed of traffic (Butte County 2012).

The 2024 RTP/SCS includes projects such as bridge construction and modification (such as those in the Local Highway Bridge Program) and connector roads, as well as improvements to roadways such as widening. Such projects would not in themselves introduce new traffic, but rather are intended to relieve current or projected future traffic congestion or unacceptable safety conditions. Further, as discussed below, transit noise is not expected to be significantly greater than normal roadway noise and the RTP would increase ridership of transit which would incrementally decrease traffic noise. However, in some cases, widening and extension projects would accommodate additional traffic volumes that would increase traffic noise and/or relocate noise sources closer to receptors. Therefore, traffic noise impacts would be potentially significant.

Airports

The 2024 RTP/SCS includes roadway widening on Cohasset Road near Chico Municipal Airport. This project, and other 2024 RTP/SCS projects would not directly or indirectly increase aircraft operations at public use airports in the county. Any future infill project under the 2024 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, which would ensure that noise attenuation features are implemented into the project as necessary. Therefore, the 2024 RTP/SCS would not increase ambient noise levels near airports. No significant impacts due to aircraft operations would occur.

Transit Projects

Proposed projects and programs include improvements designed to enhance bus service. Improvements may include the construction of bus stop amenities, transfer facilities, the provision of replacement buses, computer equipment, fare equipment, security upgrades, and investments in para-transit and elderly services. New transit trips would be generated where demand for service is needed and some existing routes may be removed or replaced from the transit schedule. Thus, transit related traffic noise would increase along some routes but decrease on others. Overall, transit noise is not expected to be significantly greater than normal roadway noise and VMT overall would decrease as a result of the proposed project since the RTP would increase ridership of transit; therefore, traffic noise would also decrease incrementally. Therefore, the overall change in the noise environment would not be significant.

Rail Projects

The 2020 RTP/SCS EIR noise analysis did not identify rail projects. However, Table 2-1 identifies passenger rail projects, including an inter-city commuter rail service from Chico to Sacramento with stops at smaller cities in between. The FTA has developed a screening procedure to identify locations where a rail project may cause a noise impact. The screening distances for requiring noise assessments for various types of projects are presented in Table 4.7-2. Sensitive land uses may be located within proximity to the rail corridors, and would potentially be exposed to noise levels that exceed acceptable standards, a significant impact.

Table 4.7-2 Screening Distances for Noise Assessments – Rail Transit Projects (in feet)

Type of Project		Unobstructed	Intervening Buildings
Commuter Rail Mainline		750	375
Commuter Rail Station	With Horn Blowing	1,600	1,200
	Without Horn Blowing	250	200
Commuter Rail -Highway Crossing with Horns and Bells		1,600	1,200
Railroad Transit		700	350
Railroad Transit Station		200	100
Light Rail Transit		350	175
Streetcar		200	100
Access Roads to Stations		100	50
Low and Intermediate Capacity Transit	Steel Wheel	125	50
	Rubber Tire	90	40
	Monorail	175	70
Yards and Shops		1,000	650
Parking Facilities		125	75
Access Roads to Parking		100	50
Ventilation Shafts		200	100
Power Substations		250	125

Source: FTA 2018

Mitigation Measures

The following mitigation measure included in the 2020 RTP/SCS would apply to the 2024 RTP/SCS, with some slight modifications to clarify the mitigation also applies to rail projects.

N-2 Transportation Noise Reduction

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for transportation projects. Butte County and cities in the County should implement these measures originally required by the 2020 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

a) Sponsor agencies of RTP/SCS projects shall complete detailed noise assessments using applicable guidelines (e.g., Federal Transit Administration Transit Noise and Vibration Impact Assessment for rail and bus projects and the California Department of Transportation Traffic Noise Analysis Protocol for roadway projects). The project sponsor 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.

b) Where new or expanded roadways, transit, or rail are found to expose receptors to noise exceeding normally acceptable levels, the individual 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 design, including retrofit of existing structures with 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 individual environmental review pursuant to the regulations of the applicable lead agency.

Significance After Mitigation

Mitigation Measure N-2 would require attenuation meeting state and local standards to assure that exposure of sensitive receptors to mobile source noise levels would not be significant. If a project is located near a sensitive receptor, the project sponsor would ensure that the facility is designed and constructed to avoid or minimize exposure to unacceptable noise levels. Projects would either be placed outside an appropriate setback distance, implement sound attenuating building design, and/or implement sound barriers to avoid substantial adverse effects. With implementation of the recommended programmatic measures, similar to the findings in the 2020 RTP/SCS EIR, impacts would be less than significant.

Threshold 2: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Impact NOI-3 CONSTRUCTION OF NEW OR MODIFIED PROJECTS FACILITATED BY THE 2024 RTP/SCS COULD TEMPORARILY GENERATE GROUNDBORNE VIBRATION, SIMILAR TO THE 2020 RTP/SCS, POTENTIALLY AFFECTING NEARBY LAND USES. POLICIES IN THE 2024 RTP/SCS WOULD LIMIT VIBRATION DISTURBANCE AND ENSURE THAT HIGH VIBRATION LEVELS DURING WORKING CONSTRUCTION HOURS ARE REDUCED TO THE EXTENT FEASIBLE. HOWEVER, CONSTRUCTION VIBRATION FROM PILE-DRIVERS MAY DISTURB PEOPLE OR DAMAGE BUILDINGS; IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT WITH MITIGATION.

Construction-related vibration has the potential to damage structures, cause cosmetic damage (e.g., crack plaster), or disrupt the operation of vibration-sensitive equipment. Vibration can also be a source of annoyance to individuals who live or work close to vibration-generating activities. Heavy construction operations can cause substantial vibration near the source. Table 4.7-3 shows vibration levels associated with typical construction equipment. Similar to construction noise, vibration levels would be variable depending on the type of construction project and related equipment use.

Table 4.7-3 Vibration Source Levels for Construction Equipment

	Approximate Vibration Level (VdB)			
Equipment	25 feet from Source	50 feet from Source	100 feet from Source	200 feet from Source
Caisson Drilling	87	78	69	60
Jackhammer	79	70	61	52
Large Bulldozer	87	78	69	60
Loaded Truck	86	77	68	58

Equipment		Approximate Vibration Level (VdB)			
		25 feet from Source	50 feet from Source	100 feet from Source	200 feet from Source
Pile Driver (impact)	Upper range	112	103	94	84
	Typical	104	95	86	77
Pile Driver (sonic)	Upper range	105	96	87	78
	Typical	93	84	75	65
Small Bulldozer		58	48	39	30
Vibratory Roller		94	85	76	67

Source: FTA 2018

Typical project construction activities, such as the use of jackhammers, other high-power or vibratory tools, compactors, and tracked equipment, may also generate substantial vibration (i.e., greater than 0.2 inches per second PPV) in the immediate vicinity, typically within 15 feet of the equipment. Through the use of scheduling controls, typical construction activities would be restricted to hours with least potential to affect nearby properties. Thus, perceptible vibration can be kept to a minimum and not result in human annoyance or structural damage.

Some specific construction activities result in higher levels of vibration. Pile driving has the potential to generate the highest vibration levels and is the primary concern for structural damage when it occurs within 50 feet of structures. Vibration levels generated by pile driving activities would vary depending on project conditions, such as soil conditions, construction methods and equipment used. Depending on the proximity of existing structures to each construction site, the structural soundness of the affected buildings and construction methods, vibration caused by pile driving or other foundation work with a substantial impact component such as blasting, rock or caisson drilling, and site excavation or compaction may be high enough to be perceptible within 100 feet and damage existing structures within 50 feet. Impacts related to vibration from construction activities would remain significant but mitigable.

Mitigation Measure

Mitigation Measure N-1, above, would reduce impacts to a less than significant level.

Significance After Mitigation

Mitigation Measure N-1 would require substitution of pile drilling whenever feasible, rather than impact equipment operation associated with pile driving to reduce vibration impacts. With implementation of the recommended programmatic measures vibration impacts would remain less than significant.

4.8 Population and Housing

This section evaluates the impacts to the regional housing supply and population growth associated with implementation of the 2024 RTP/SCS.

4.8.1 Setting

a. Camp Fire Population Displacement

Between November 8 and November 25, 2018, a 153,336-acre wildfire referred to as the Camp Fire destroyed more than 14,600 residences and displaced the majority of the population of the Town of Paradise in Butte County (Miller 2019). The fire caused residents of Butte County whose homes were destroyed to temporarily or permanently relocate to other cities within the County. Specifically, the cities of Chico and Oroville experienced a significant population increase between 2018 and 2020 as a result of the Camp Fire (BCAG 2019). Additional structure losses from the North Complex (2020) and Dixie (2021) Fires have caused further displacement of residents in the region.

b. Growth Forecasting

The current population, housing and employment forecast estimates for Butte County were developed using professionally accepted methodologies for long-range forecasting. BCAG consulted the Department of Finance (DOF) projections in addition to a variety of sources specific to local jurisdictions, and adjusted the forecasts to compensate for the re-distribution and re-population of the Camp Fire burn area.

The Draft 2022-2045 Provisional Long-Term Regional Growth Forecasts (Draft 2022-2045 Growth Forecast) (BCAG 2023) projects the region's population, housing and employment to 2045. This projection is provisional because the impacts of the Camp Fire (which occurred in 2018) to population, housing, and employment are still being assessed. The Draft 2022-2045 Growth Forecast is used to support regional planning efforts such as the Regional Travel Demand Model and the 2020 RTP/SCS as well as local planning such as the development of General Plans and long-range plans.

The Draft 2022-2045 Growth Forecast predicts that housing in the County will increase from 91,549 units in 2022 to between 108,220 and 118,548 units in 2045 (an approximately 18 and 29 percent increase). Population is predicted to increase from 201,608 people in 2022 to between 238,009 and 260,707 people in 2045. Employment is predicted to increase from 77,000 jobs in 2022 to between 88,740 and 97,209 jobs in 2040 (BCAG 2023).

c. Existing Population, Housing, and Employment

Existing population, housing units and employment for unincorporated Butte County and the five incorporated cities are shown in Table 4.8-1. As of 2022, the County contains 201,608 residents, 91,549 housing units, and 77,000 jobs, with a jobs-to-housing ratio of 0.84 (BCAG 2023).

Table 4.8-1 2022 Population, Housing, and Employment in Butte County

Jurisdiction	Population	Housing Units	Jobs[1]
Biggs	1,939	677	--
Chico	102,892	45,793	--
Gridley	7,205	2,606	--
Oroville	18,863	7,783	--
Paradise	7,705	3,702	--
Unincorporated County	63,004	30,988	--
Total County	201,608	91,549	77,000

[1] No City or unincorporated County jobs data was available.

Source: BCAG 2023

d. Regulatory Setting

Federal Uniform Relocation and Real Property Acquisition Policies Act of 1970

The Federal Uniform Relocation and Real Property Acquisition Policies Act (URA), 42 USC Section 4601 et seq., passed by Congress in 1970, is a federal law that establishes minimum standards for federally funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms. The URA's protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects (HUD 2019).

Temporary Federal Housing in Butte County

In June 2019 in response to the Camp Fire, the Federal Emergency Management Agency (FEMA) began providing leased space in a commercial housing site, which will eventually serve as temporary housing for up to 1,000 households (FEMA 2019). This housing option is a temporary measure meant to provide service as previous residents work towards permanent housing solutions. This temporary solution is limited to 18 months from the date the Presidential Disaster Declaration was approved (November 12, 2018).

California Relocation Assistance Act

The California Relocation Assistance Act of 1971 (Government Code Section 7260 et seq.) is similar to the Uniform Relocation Assistance Act of 1970 (federal). However, it applies to State and local programs and projects that receive State funding, regardless of whether they receive federal funding.

County and City General Plans

Butte County, in addition to the incorporated cities and towns within the county, maintain General Plans and associated Housing Elements applicable to those jurisdictions. The Butte County General Plan applies to the unincorporated areas of the county, while the city and town General Plans apply within the city and town boundaries, in addition to identified Spheres of Influence. The Housing Elements provide each agency's plan to meet the Regional Housing Needs Allocation goals for the number of new units and percentage of affordable units needed.

4.8.2 Impact Analysis

a. Methodology and Significance Thresholds

Appendix G of the *CEQA Guidelines* identifies the following criteria for determining whether a project's impacts would have a significant impact to population and housing:

- Induce substantial unplanned 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); and/or
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

b. Project Impacts and Mitigation Measures

This section describes generalized impacts associated with proposed transportation improvements and the future land use scenario under the 2024 RTP/SCS. Due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific impacts associated with individual transportation and land use projects is not possible. In general, however, implementation of proposed transportation improvements and future projects under the land use scenario envisioned by the 2024 RTP/SCS could result in the impacts as described in the following section.

Threshold 1:	Would the project induce substantial unplanned 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)?

Impact POP-1 THE 2024 RTP/SCS WOULD NOT RESULT IN SUBSTANTIAL POPULATION GROWTH IN BUTTE COUNTY. THIS IMPACT IS LESS THAN SIGNIFICANT.

From 2022 to 2045, the County's total population is forecasted to increase by up to 59,099 residents for a total of up to 260,707 total residents.[1] Table 4.8-2 shows the forecasted population growth for the region as a whole and by jurisdiction.

Table 4.8-2 Forecasted BCAG Population Growth 2022-2045 (High Scenario)

Jurisdiction	2022	2025	2035	2045	Population Change (2022-2045)	Percent Change (2022-2045)
Biggs	1,939	2,000	2,395	2,501	562	29
Chico	102,892	107,097	125,041	129,466	26,574	26
Gridley	7,205	7,514	9,312	9,789	2,584	36
Oroville	18,863	19,277	20,541	22,632	3,769	20
Paradise	7,705	11,830	16,879	17,380	9,675	126
Unincorporated	63,004	65,309	76,177	78,938	15,934	25
Total County	201,608	213,026	251,723	260,707	59,099	29

Source: BCAG 2023

[1] These estimates incorporate changes anticipated as a result of the Camp Fire.

Regional population is forecasted to increase by up to 29 percent from 2022 to 2045. Between 2022 and 2045, the BCAG region would grow by up to 59,099 people; up to 26,999 housing units; and up to 20,209 jobs. As shown above, population growth in the cities of Paradise, Gridley, and Biggs would increase at a faster rate than the rest of the BCAG region. In contrast, population growth in the City of Oroville and unincorporated Butte County would increase at a slower rate than the region as a whole. This distribution of growth is influenced by recent population displacement within the County resulting from the Camp Fire and projected repopulation of the affected cities. Compared to the 2018-2040 growth forecast (BCAG 2019), all Cities and Towns are estimated to achieve more growth (both in total population in 2045 and percentage increase) in the 2022-2045 growth forecast.

The 2024 RTP/SCS includes 125 net new transportation improvement projects, as compared to the 2020 RTP/SCS, which include transit service programs, improvements, and expanding service; increasing parking and park and ride capacities; implementing vanpool services; new or improvements to pedestrian and bicycle facilities; repair and/or replace roadways and bridges; guardrail replacement and other safety improvements; adding lanes to or widening existing roadways; constructing roundabouts; new bridges; and new traffic signals. No new housing developments are proposed in the 2024 RTP/SCS. No land use designations are proposed to be altered by the 2024 RTP/SCS, as the 2024 RTP/SCS considers projected future land use patterns and forecasted population and job growth to determine the transportation needs of the County. Transportation improvements associated with the 2024 RTP/SCS would not result in direct or indirect population growth beyond anticipated growth in the region, and projects under the proposed 2024 RTP/SCS are designed to fully support the transportation needs of the growing population. Therefore, impacts would be less than significant and no mitigation is required.

Mitigation Measures

No mitigation is required.

Threshold 2:	Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Impact POP-2 THE 2024 RTP/SCS WOULD NOT DISPLACE EXISTING HOUSING AND PEOPLE AS TRANSPORTATION PROJECTS ARE DEVELOPED. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Similar to the 2020 RTP/SCS, new transportation projects included in the 2024 RTP/SCS are not anticipated to cause the displacement of existing housing or people, as proposed transportation projects (as described in Section 2.4) that involve the construction of new facilities, or extension of existing roadways, such as the proposed Yosemite Drive connection and Roe Road connection, would not require the demolition of existing residences or housing facilities. Although right-of-way easement acquisitions may be required (right-of-way acquisitions are described in more detail below). During construction of individual projects, residents may be temporarily affected (refer to Section 4.2, *Air Quality*; Section 4.6, *Greenhouse Gas Emissions/Climate Change*; Section 4.7, *Transportation/Circulation*, of this EIR), but would not be displaced.

Historically, vacancies within the existing housing stock absorb displacement of residents. In addition, existing laws and regulations would provide assistance in relocating households. As described in the *Regulatory Setting* above, the URA requires public agencies to provide relocation assistance when an action by the agency displaces residences. Thus, if any short-term displacement

of housing were to occur, it would be mitigated through both existing regulation and normal market factors.

In the long-run, the 2024 RTP/SCS would support the anticipated increase in housing units by providing improved roadway capacities and roadway connections; and improved pedestrian, bicycle, and transit facilities. Between 2022 and 2045, the projected maximum increase in housing capacity in the County would be 26,999 units, or an increase of 29 percent (BCAG 2023). The most dramatic increases would occur in the City of Paradise, as it recovers from the Camp Fire, with moderate increases occurring in the remaining cities ranging from 20-36% (BCAG 2023). Because the 2024 RTP/SCS would not require the demolition of existing housing units, it would not displace substantial numbers of existing housing or people and would not necessitate the construction of replacement housing.

Some transportation network improvements, such as new road widening or extension projects, would require acquisition of right-of-way in areas with housing or businesses along transportation corridors and may displace residential or commercial units. Specific projects would be required to undergo separate environmental review under CEQA. The corresponding project-specific environmental documentation would identify potentially significant impacts with regard to displacement of private property, if any, and provide the appropriate mitigation measures. Impacts from transportation improvements would consider relocation assistance in accordance with the URA. As a result, impacts related to housing and population displacement would be less than significant.

Mitigation Measures

No mitigation is required.

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4.9 Transportation

This section builds off the 2020 SEIR and evaluates effects on transportation and circulation in the Butte County region that would result from implementation of the 2024 RTP/SCS.

4.9.1 Setting

a. Regional Road Network

Existing Road System

The Butte County regional road system is a network of highways and roads constrained by the region's geography. The circulation system in the flat valley of the southwestern portion of the county is affected most significantly by the Feather River. The river bisects the lower portion of the county running south. Travel in the foothills and mountains of the eastern part of the county is limited to east-west roadways that run through valleys and canyons.

Man-made barriers, like the railroad tracks running north-south parallel to the state highways, also constrain the circulation system. Together the river and railroad tracks facilitate north-south travel, although they also hinder east-west travel in the southern portion of the county.

Butte County has over 2,000 miles of public roadways under the jurisdiction of various government entities. These roadways carry an estimated 4.2 million vehicle miles of travel (VMT) daily (California Department of Transportation [Caltrans] 2023).

Functional Classification and Design Standards of Roadways

Butte County's streets and highways can be described in terms of a hierarchy of roadways according to their functional classification. This hierarchy of streets and highways is only a general guide to the classification of roadways that make up the circulation system. Because streets often serve dual functions, they cannot be definitively classified. In addition, the width of a roadway does not always correspond directly to its function in the overall circulation system, although the wider roadways tend to have more regional function.

Two major classifications, urban and rural streets, are grouped according to the character of service they are expected to provide. It is necessary to differentiate between urban and rural areas since the services they provide can differ greatly.

Urban Roadway Classes

Urban Local Roadways

Urban local roadways are intended to serve adjacent properties only. They carry very little, if any, through traffic and generally have low volumes. They are normally discontinuous in alignment to discourage through traffic, although they are occasionally laid out in a grid system. Speed limits on local roads seldom exceed 25 miles per hour. An example of a local roadway in an urban environment is the cul-de-sac.

Urban Collector Roadways

Urban collector roadways are intended to collect traffic from local roadways and carry it to roads higher in the hierarchy of classification. Collector roads also serve adjacent properties. They generally carry light to moderate traffic volumes at speed limits typically in the range of 35 to 45 miles per hour.

Urban Arterial Roadways

Urban arterial roadways can be further divided into major and minor facilities. They are fed by local and collector roads and provide intra-city circulation and connection to regional roadways. Although their primary purpose is to move heavy volumes of traffic, arterial roadways often provide access to adjacent properties, especially in commercial areas. Speed limits on arterial roadways typically range from 45 to 55 miles per hour.

Rural Roadway Classes

Rural Local Roads

Rural local roads serve primarily to provide access to adjacent land and provide for travel over relatively short distances.

Rural Collector Roads

Rural collector roads serve travel that is primarily intra-county rather than of regional or statewide importance. Travel distances on these roads are usually shorter than on arterial roadways.

Rural Arterial Roadways

Rural arterial roadways provide for corridor movements having trip lengths and volumes that indicate substantial statewide or interstate travel. They generally link urban areas of over 50,000 population as well as many areas with 25,000 population or more. They are often regional highways or freeways as described below.

High-Volume Corridors

The following classifications of roadway serve both rural and urban areas by providing travel on important, high-volume corridors.

Regional Highways

Regional highways are used as primary connections between major traffic generators or as primary links in state and national highway networks. Such routes often have sections of many miles through rural environments without traffic control interruptions.

Six State Highways serve as regional highways in Butte County. These highways, which provide the primary access through the county, include State Routes (SR) 32, 70, 99, 149, 162, and 191.

Freeways and Expressways

Freeways and expressways are intended to serve both intra-regional and inter-regional travel. They provide no access to adjacent properties, but rather are fed traffic from collector and arterial roadways by access ramps. Freeways provide connections to other regional highways and are

capable of carrying heavy traffic volumes. Speed limits on freeways are usually the highest allowed by law.

Butte County has two segments of four-lane limited-access freeway or expressway. One segment is SR 70 between 0.4 mile south of SR 162 through Oroville to the junction of SR 149. The other segment is SR 99 starting at the SR 99/SR 149 intersection and continuing through Chico to one mile north of the Eaton Road interchange. These segments are part of the north-south travel corridor of SR 99 and part of SR 70 Because these state routes have only two segments of freeway, the Butte County region has one of only two standard metropolitan statistical areas (SMSAs) in the United States that is not served by an interstate freeway.

b. Transit Service

While the automobile is the primary mode of travel in Butte County, the 2024 RTP/SCS, the Butte County General Plan, and the general plans of the local jurisdictions support a balanced transportation system that facilitates all modes of travel.

Public transit in Butte County is primarily provided by the Butte Regional Transit (B-Line) bus service, along with other transit service providers such as Glenn Ride Transit (service between Chico and Glenn County), various social service agencies, Greyhound Bus Lines, and other private transportation services (B-Line 2024, Glenn Ride Transit 2024). The transit system in Butte County provides an indispensable service to the region, as it provides an alternative to driving for all users, including those with limited or no access to a vehicle, to meet their transportation needs.

Fixed-Route Public Transit

B-Line is a countywide public transit system that provides both intra-city and inter-city fixed-route and demand responsive service (Paratransit). Intra-city service is provided in Chico, Paradise, and Oroville. Inter-city service is provided on four routes between Chico and Oroville, Oroville and Gridley/Biggs, Gridley/Biggs and Chico, and Paradise, Magalia, and Chico.

Local Chico Service

Eleven fixed routes provide intra-city service within Chico. Many of the routes are through-routed (interlined) with each other to improve connectivity and to reduce the number of vehicles that are needed to operate the system. The routes provide connections to all the major origins and destinations in Chico including California State University, Chico, junior high and high schools, downtown, shopping areas, hospitals, the library, and major high-density residential areas. Two routes (8 and 9) are specifically designated as student shuttle routes and connect the university and downtown with the major student-housing corridors. These routes do not operate when Chico State is on break.

General operating hours are 6:50 a.m. to about 9:00 p.m. Monday through Saturday with some service as late as 10:00 p.m. No local service is provided on Sunday. Inter-city service to Paradise on one route (31) has been suspended since the Camp Fire and two inter-city routes (40 and 41) connecting Chico and Paradise have been combined. One inter-city route connects Chico to Oroville seven days a week. Inter-city service to Gridley is provided by a route that operates once per day during the work week. Most of the local routes in Chico have timed connections with inter-city routes at the Chico Transit Center.

Additionally, the San Joaquins Joint Powers Authority operates the Amtrak Route 3 Thruway Bus service that operates between Chico and Stockton, with stops in Chico and Oroville. This service

includes three southbound and three northbound trips per day. Passengers are required to have a valid Amtrak train ticket to board these buses. The Route 3 bus station in Chico is located at the existing Amtrak train station at W. 5th and Orange Streets, and in Oroville at Feather River Blvd., just south of SR 162. Subsequent bus connections from these routes in Sacramento allow travel to Reno, Yosemite, Las Vegas, Monterey, the San Francisco Bay Area, and throughout southern California. The Redding Area Bus Authority operates a bus between Redding and the Chico Amtrak station with two round trips per day with timed connections with the Amtrak Route 3 Thruway bus.

Lastly, the only private bus service available in Butte County is Greyhound/Flixbus, which provides inter-city service between Chico and Sacramento with two morning and two evening southbound and northbound buses per day.

Local Oroville Service

Oroville is served by four fixed routes that operate Monday through Friday, 6:12 a.m. to 7:30 p.m. Local service is not provided on weekends or major holidays. The routes connect the County Administrative Complex, the downtown transit center, residential areas within the City of Oroville, and portions of Thermalito and South Oroville. Inter-city service to Chico is provided by one route (20) that operates seven days a week. Inter-city service to Gridley/Biggs is provided by one route (30) that operates Monday through Saturday, three times per day in each direction. Inter-city service to Paradise has been suspended since the Camp Fire. Most of the local routes in Oroville have connections with inter-city routes at the Oroville Transit Center.

Local Paradise Service

Route 31 between Paradise and Oroville has been suspended since the Camp Fire. Route 40 from Chico or Paradise and Route 41 from Chico to Magnolia have been combined into one frequency since the Camp Fire, but continue to run throughout the day.

Paratransit Service

B-Line provides paratransit service, in accordance with the Americans with Disabilities Act (ADA), to all destinations within ¾ of a mile of any Butte Regional Transit fixed route, within Chico, Oroville, or Paradise. Non-ADA trips are provided along direct, easily accessible routes to destinations within three miles of the ADA core boundary at an additional cost for each subsequent mile. Operating hours are 5:50 a.m. to 10:00 p.m. Monday through Friday, 7:00 a.m. to 10:00 p.m. on Saturday, and 7:50 AM to 6:00 PM on Sunday. Within Gridley, Paratransit service is provided by the Gridley Golder Feather Flyer, a Dial-A-Ride service that operates Monday through Friday, 8:00 a.m. to 4:00 p.m.

Dial-A-Ride Service

B-Line provides Dial-A-Ride service to seniors aged 70 years and older at a cost of $3.50 for each one-way ride. In the Gridley/ Biggs area, people needing dial-a-ride service may use the Gridley Golden Feather Flyer, with tickets pre-purchased at City Hall. The Feather Flyer is available to persons aged 62 and older or those with proof of a disability, provided in advance to the City Hall office.

c. Aviation

Air transportation in Butte County is served by a number of private and public airfields and heliports serving general aviation and agricultural users. Most of these are small fields for private use.

Commercial flights to distant or out-of-state destinations are available at the Sacramento International Airport, about 60 miles south of Oroville.

Chico Regional Airport

The Chico Regional Airport (KCIC), formerly the Chico Municipal Airport, is owned and operated by the City of Chico. The airport is located to the north of the city, west of Cohasset Road. This facility is the largest airport in Butte County. KCIC commercial service ended in December 2014 but received a $500,000 federal grant to help recover commercial air service in 2020 with the Federal Aviation Administration (FAA) committing $12 million to reconstruct one of the CMA's runways (Urseny 2020). Chico Regional Airport is currently used exclusively for business and general aviation serving the Chico and Central Sacramento Valley area.

The 1,475-acre airport facility has two paved runways; the main runway is 6,724 feet long and 150 feet wide and the secondary runway is 3,005 feet long and 60 feet wide. The control tower is open from 7:00 a.m. to 7:00 p.m. seven days a week. The tower and all other navigational aids are maintained and operated by the Federal Aviation Administration (FAA).

Chico Regional Airport is the primary airport for air cargo service in Butte County. It also provides air cargo service to Glenn, Tehama, and Plumas counties. As of 2023, the airport recorded 21 scheduled commercial services, 6,719 air taxi flights, 6,170 local general aviation flights, and 19,546 other general aviation flights. There were 98 aircraft based at the airport including 80 single-engine, 11 multi-engine, two jet engine aircraft, and five helicopters (FAA 2024a).

Oroville Municipal Airport

The Oroville Municipal Airport is owned by the City of Oroville. This 877-acre facility is located 2.5 miles west of the city along SR 162. Although the city's sphere of influence extends a mile west of the airport, only the airport property and some private land to the north and west are within the city boundary. The airport has two paved runways; the main runway is 6,020 feet long and 100 feet wide and the secondary runway is 3,540 feet long and 100 feet wide.

In 2023, this airport served 36,000 annual operations. There were 42 aircraft based at the airport, including 41 single-engine general aviation aircraft and one helicopter (FAA 2024b).

Paradise Skypark Airport

The Paradise Skypark Airport is located three miles south of the Paradise town center. It is privately owned and operated and has one runway of 3,017 feet. In 2005 – the most recent year for which data is available from the Federal Aviation Administration – aircraft based at Paradise Skypark totaled 39, including 36 single engine planes, two multi-engine planes, and one helicopter (FAA 2024c).

Ranchaero Airport

The Ranchaero Airport is a 23-acre facility located on the west side of Chico. Privately owned and operated, it has one runway of 2,156 feet. In 2004 – the most recent year for which data is available from the Federal Aviation Administration - 34 aircraft were based there, including 30 single engine planes and four helicopters (FAA 2024d).

Other aviation facilities include four private, special use airports: Jones Airport, Williams Airport, Johnsen Airport, and Richvale Airport; a seaplane-landing area in the center of Lake Oroville; and heliports at Enloe Hospital and Oroville Hospital.

d. Rail Transportation

Butte County is served by Union Pacific Railroad. The Union Pacific maintains 100.4 miles of mainline track in Butte County; one line, in the western portion of the county (formerly the Southern Pacific mainline) that passes through Gridley, Biggs, and Chico and two in the eastern portion that pass through Oroville. Goods shipped by the railroad include bulk items such as grains, rice, vehicles, lumber, and fuel.

Passenger rail service is provided by Amtrak. Amtrack operates the Coast Starlight, which runs between Seattle and Los Angeles, is currently the only direct passenger rail service in Butte County.. Two trains, one northbound and one southbound, stop in Chico daily. The northbound train arrives at approximately 2:00 a.m. and the southbound train at approximately 4:00 a.m., providing limited service. New passenger rail service to Butte County is planned via the North Valley Rail which will extend the Altimont Corridor Express and Amtrak San Joaquins trains north of Sacramento with proposed stops in Chico, Gridley, Mayrsville-Yuba City, and Plumas Lake (North Valley Rail 2024). The North Valley Rail is planned to begin passenger rail service in 2031 with four roundtrips a day.

e. Truck Transport

Truck transport is the primary method of moving goods into and through Butte County. The designated truck route through Butte County encompasses a combination of SR 32, 70, 99, 149, 162, and 191. This route was designated because there is no continuous four-lane freeway/expressway on which to safely accommodate the movement of goods by truck. SR 32, 70, 99 and Skyway are commonly used to transport freight to and from the urban centers in Butte County. The incorporated cities in Butte County have designated truck routes.

As discussed above under Rail Transportation, Butte County is served by the Union Pacific Railroad. Union Pacific is responsible for maintaining all rail facilities and providing necessary improvements over time. There are a number of sidings and spur tracks in Butte County. Some are used by various manufacturers, some are used as passing sidings, and others have been abandoned. The Craig siding and Adelaide spur, both south of Oroville, serve several lumber mills, while several sidings in the Chico and Oroville areas are currently in use by various manufacturers. The Kramm and Elsey sidings just north of Oroville are both passing sidings with some limited use for commercial enterprise, and the James and Pulga are passing sidings in the Feather River Canyon. On an average day, approximately 24 to 50 trains move through Butte County on the Union Pacific tracks. Much of the cargo shipped by rail includes bulky items such as grains, rice, vehicles, lumber, and fuel.

f. Bicycle/Pedestrian Facilities

Many communities in Butte County support bicycling for both transportation and recreation. All of the incorporated cities and the County have Bicycle Master Plans to aid in the planning and development of a comprehensive bicycle network throughout the county. These plans were adopted between 2010 and 2019. In 2021, BCAG completed the updated 2021 Butte County Transit and Non-Motorized Plan, which focused on short-term and long-term improvements to the pedestrian, bike, and transit networks. Given the energy savings, VMT reductions, health advantages, and environmental benefits of active modes of travel, bicycle facilities will continue to play an important role in transportation planning.

Bike facilities are categorized into four different classifications:

- Class I Shared-Use Paths are bikeway facilities designated for exclusive use by bicycles and pedestrians. They are separated from roadways, usually designed for two-way travel, and are designed to minimize cross-flow by motor vehicles. Whenever practical, these paths should be at least 8 feet wide, paved with asphalt concrete, and have two-foot wide, graded shoulders made of aggregate base.
- Class II Bike Lanes are areas within paved streets. They usually consist of adjacent one-way lanes on either side of the roadway for exclusive and semi-exclusive use by bicycles. At minimum, Class II bike lane facilities require four-foot wide lanes on both sides of the roadway where shoulders are present and five-foot wide lanes where curb and gutters are present. These facilities are for the exclusive use of bicycles where they are separated from the motor vehicle lane by a six-inch painted white stripe and designated with signs and permanent pavement markings. Shared use by motor vehicles within these facilities is only permissible where indicated by broken or dashed striping.
- Class III Bike Routes are located in shared-use travel lanes with sufficient width for both motor vehicle and bicycle usage. Class III bike routes are usually only designated by signs or permanent pavement markings indicating the route.
- Class IV Separated Bikeways are on-street facilities reserved for use by bicyclists, with physical separation between the bikeway and travel lanes. Separated bikeways – also known as cycle tracks – can be one-way facilities on both sides of the street or two-way facilities on one side of the street. Physical separation can include concrete curbs, landscaping, parking lanes, bollards, or other vertical elements. They differ from Class I shared-use paths and Class II bike lanes, as they are on-street but physically separated from vehicle traffic.

The 2021 Butte County Transit and Non-Motorized Plan identifies a number of planned facility improvements, including bike lanes along SR 99, Mangrove Avenue, 5th Street in Chico. In Oroville, a bike path is proposed along the Feather River and bike lanes on Oroville Dam Boulevard, Montgomery Street, Mitchell Avenue, and Feather River Boulevard. Finally, a number of additional bike facilities are planned for Paradise, Biggs, Gridley, and the unincorporated county.

Most of the pedestrian facilities located within the urban areas of Butte County are sidewalks built in conjunction with site improvements for residential and commercial development. Newer sidewalk facilities include access ramps that meet both County and ADA standards. Older facilities are being gradually upgraded to include access ramps as part of the County's Capital Improvement Program. To create uniform pedestrian corridors, sidewalk improvements will also have to be added to complete existing facilities that presently terminate without accessible ramps or connections to adjacent facilities.

Development standards for jurisdictions within Butte County typically require proposed residential and commercial developments in urban areas to construct curb, gutter, and sidewalk improvements along a development's frontage on a public street. In the Chico urban area, residential developments with lot sizes greater than one acre are not presently required to construct curb, gutter, and sidewalk improvements along public street frontage.

4.9.2 Regulatory Setting

a. Federal Regulations

The primary federal requirements applicable to transportation components of the RTP relate to transportation planning and funding and conformity with federal air quality requirements. Requirements for RTPs are addressed in the metropolitan transportation planning rules in 23 Code of Federal Regulations (CFR) 450. These federal regulations incorporate the most recent transportation statute affecting federal funding for transportation projects (i.e., *Fixing America's Surface Transportation (FAST) Act*, enacted in December 2015).

Overall, the FAST Act largely maintains current program structures and funding shares between highways and transit enacted in the Moving Ahead for Progress in the 21st Century Act (MAP-21). The law also makes changes and reforms to many federal transportation programs, including streamlining the approval processes for new transportation projects, providing new safety tools, and establishing new programs to advance freight projects.

Key federal requirements for long-range plans include the following:

- RTPs must be developed through an open and inclusive process that ensures public input and seeks out and considers the needs of those traditionally under served by existing transportation systems
- RTPs must be developed through a performance-driven, outcome-based approach that includes state and public transportation operators
- RTPs must be developed at least every four years for non-attainment regions
- RTPs must have a planning period of at least 20 years into the future
- RTPs must reflect the most recent assumptions for population, travel, land use, congestion, employment, and economic activity
- RTPs must have a financially constrained element, and transportation revenue assumptions must be reasonable
- RTPs must conform to the applicable federal air quality plan, called the State Implementation Plan (SIP), for ozone and other pollutants for which an area is not in attainment
- RTPs must consider eight planning factors and strategies, in the local context
- RTPs must provide for the development of accessible pedestrian walkways and bicycle transportation facilities
- RTPs shall address resiliency and reliability of the transportation system
- RTPs shall include strategies to reduce vulnerabilities due to natural disasters
- RTPs shall identify public transportation facilities and intercity bus facilities
- RTPs must consider public ports and freight shippers

On May 27, 2016, the Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning Final Rule was issued, with an effective date of June 27, 2016, for Title 23 CFR Parts 450 and 771 and Title 49 CFR Part 613. This final rule states, "On or after May 27, 2018, an RTPA may not adopt an RTP that has not been developed according to the provisions of MAP-21/FAST Act as specified in the Planning Final Rule." This rule applies to the 2024 RTP/SCS as its adoption date, if adopted, would occur after May 2018.

National Environmental Policy Act

The National Environment Policy Act (NEPA) of 1969 (42 U.S.C. Section 4321 et seq.) requires federal agencies to assess the possible environmental consequences of projects that they propose to undertake, fund, or approve. While the 2024 RTP/SCS is not subject to NEPA, individual federally funded programs or projects requiring federal approval will be subject to a NEPA evaluation at the time of project implementation.

b. State Regulations

State requirements for long-range transportation plans are similar to the federal regulations. However, key additional requirements described in Government Code Section 65080 include:

- compliance with CEQA
- consistency with State Transportation Improvement Program
- use of program level performance measures that include goals and objectives
- RTPs must include a policy element, an action element, and a financial element

Plans must also include a Sustainable Communities Strategy (see Senate Bill [SB] 375 discussion below).

California Transportation Commission Regional Transportation Plan Guidelines

The California Transportation Commission (CTC) publishes and periodically updates guidelines for the development of long-range transportation plans. Pursuant to Government Code Section 65080(d), each regional transportation planning agency (RTPA) is required to adopt and submit an updated RTP to the CTC and the Department of Transportation (Caltrans) every four years. BCAG is the designated RTPA for Butte County.

Under Government Code Section 14522, the CTC is authorized to prepare guidelines to assist with the preparation of RTPs. The CTC's RTP guidelines suggest that projections used in the development of an RTP should be based upon available data (such as from the U.S. Census Bureau), use acceptable forecasting methodologies, and be consistent with the California Department of Finance baseline projections for the region. The guidelines further state that the RTP should identify and discuss any differences between the agency projections and those of the Department of Finance. The most recent update to the RTP guidelines was published in 2010 and includes new provisions for complying with SB 375 (see below), as well as new guidelines for regional travel demand modeling. The regional travel demand model guidelines are "scaled" to different sizes of Metropolitan Planning Organizations (MPOs).

SB 375

The Sustainable Communities Strategy and Climate Protection Act of 2008, SB 375 (codified at CAL.GOVT CODE §§ 14522.1, 14522.2, 65080.01, 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588; Cal. Pub. Res. Code Sections 2161.3, 21155, 21159.28), is a law passed in 2008 by the California legislature that requires each MPO to demonstrate, through the development of a SCS, how its region will integrate transportation, housing, and land use planning to meet the GHG reduction targets set by the state. In addition to creating requirements for MPOs, it also creates requirements for the California Transportation Commission and California Air Resources Board (CARB).

SB 743

SB 743 resulted in several statewide CEQA changes. It required the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metrics beyond TPAs. OPR selected VMT as the preferred transportation impact metric and applied their discretion to require its use statewide. This legislation also established that aesthetic and parking effects of residential, mixed-use residential, or employment center projects on an infill site within a TPA are not significant impacts on the environment. The revised CEQA Guidelines that implement this legislation became effective on December 28, 2018, and state that vehicle level of service (LOS) and similar measures related to delay shall not be used as the sole basis for determining the significance of transportation impacts. Finally, the legislation establishes a new CEQA exemption for a residential, mixed-use, and employment center project a) within a TPA, b) consistent with a specific plan for which an EIR has been certified, and c) consistent with an SCS. This exemption requires further review if the project or circumstances change significantly.

To aid in SB 743 implementation, the following state guidance has been produced:

- Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018)
- The 2022 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals (CARB 2022b)
- Interim Land Development and Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance (July 2020)

Of these documents, the CARB 2022 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals is most relevant for transportation impact analysis of the 2024 RTP/SCS. It provides recommendations for VMT reduction thresholds that would be necessary to achieve the state's GHG reduction goals and acknowledges that the SCS targets alone are not sufficient to meet climate goals.

c. Local Regulations

Airport Land Use Commission

On November 15, 2017, Butte County's Airport Land Use Commission (ALUC) adopted the Butte County Airport Land Use Compatibility Plan (ALUCP). It establishes procedures and criteria for the ALUC to review proposed land use development and affected cities within the county for compatibility with airport activity. State law requires public access airports to develop Comprehensive Land Use Plans, (CLUPs) designating airport vicinity land use and clear zones. Such plans are to be adopted by the County's ALUC, which consists of representatives as follows: two city representatives, two airport managers, two county supervisors, and one member from the public at large.

The Butte County ALUCP is distinct from airport master plans, which address planning issues on airport property. The purpose of a compatibility plan is to ensure that development on lands surrounding the airport is compatible with airport uses. The 2017 ALUCP encompasses the Chico Municipal Airport, the Oroville Municipal Airport, the Paradise Skypark Airport, and the Ranchaero Airport. These four airports are the principal facilities in Butte County and are described earlier in this chapter.

Local Jurisdictions

Local jurisdictions within Butte County have established standards for the performance of roadways and intersections within their boundaries. The most common standards apply to peak hour operations at surface street intersections or roadways, which are defined as a minimum LOS.

LOS is typically defined on an A through F scale; with LOS A corresponding to little or no congestion or delay, and LOS F to the most congested condition or a high level of delay. The specific standard applied, calculation methodology, and exceptions for unique conditions vary widely among jurisdictions. The standards are applied on a location-by-location basis and do not account for overall system performance either within the jurisdiction, or in areas outside the jurisdiction. The performance measures used for evaluation of the 2024 RTP/SCS are intended to supplement these local standards by focusing on overall system performance.

4.9.3 Impact Analysis

Since adoption of SB 743 and revisions to the *CEQA Guidelines* in December 2018, VMT is the metric for determining the significance of transportation impacts. Therefore, similar to the approach of the 2020 RTP/SCS EIR, the analysis below describes operational VMT changes relative to both a 2022 baseline and a year 2045 baseline scenario without implementation of the 2024 RTP/SCS (i.e., No Project or continuation of the 2020 RTP/SCS). The 2045 baseline scenario effectively demonstrates the impacts that would occur as a result of continued implementation of the 2020 RTP/SCS without the additional impacts resulting from implementation of the 2024 RTP/SCS. Comparison of the 2045 VMT with the 2024 RTP/SCS and the 2045 No Project VMT allows for the additional VMT attributed to 2024 RTP/SCS to be identified and evaluated. The 2024 RTP/SCS uses 2022 as the baseline year because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for Butte County.

d. Methodology

Travel Demand Forecasting Model

BCAG maintains a countywide travel demand forecasting (TDF) model and conducted a focused update of the regional model for use in developing and evaluating the transportation impacts of the 2020 RTP/SCS. The BCAG TDF Model encompasses Butte County, which includes the cities of Biggs, Chico, Gridley, Oroville, and Paradise. When preparing 2020 RTP/SCS, major updates and changes were done for the BCAG model, including the change of platform from TransCAD to Cube, major improvements in trip generation process, and additional features including travel cost function, mode choice model and other updates. For 2024 RTP/SCS, the model base year was updated from 2018 to 2022. Additional significant refinements or changes include upgrading the model run structure from Cube Catalog to Cube Voyager. Besides this change, other updates include model input updates, model re-calibration with big data, and feature improvements. All the updates and changes are summarized below.

- *Platform update:* BCAG v1.0 runs on Cube version 6.4.3 with GIS features. The updated BCAG v2.0 runs with the latest Cube version 6.5 Voyager, with no additional requirements of GIS features.
- *Model Run Set-up:* BCAG v1.0 was established in Cube platform with Cube Catalog. In this version, the script is upgraded to a master script and run with Cube Voyager. All the post-processing analysis are saved as separate scripts that can be run for model output summaries.

- *Recalibration:* Trip generation and trip distribution based on StreetLight data and traffic counts that account for travel behavior changes from pre-pandemic to 2022 conditions.
- *Land Use Inputs:* Updated base year 2018 data to represent new base year 2022.
- *New Trip Generation Land Use:* A new land use category is added to the model to account for CSU Chico on-campus student housing.
- *Traffic Analysis Zone (TAZ) split:* Model TAZs are refined for the known future projects, such as Barber Yard in City of Chico, and Tuscan Ridge in Butte County. Additional boundary adjustments and TAZ split are done for CSU Chico, and nearby zones.
- *Transportation Projects:* The transportation project list was updated to reflect the currently planned and programed projects. The model network input is updated from geodatabase network to Cube .net format master network, with details about the project year, number of lanes, posted speed, and facility type to accommodate for the future year model development.
- *Traffic Assignment Parameter*: The capacity adjustment link attribute is updated to correctly represent the capacity for auxiliary lanes. Additional changes are made to the capacity lookup table to better assign the traffic into the model network based on the capacity calculated using facility type, speed, and number of lanes.
- *Updated Traffic Counts:* 2022 traffic counts were collected to calibrate and validate the existing 2022 conditions, which considers the post COVID-19 and post-Camp Fire effects on traffic conditions. Additional Caltrans annual traffic counts and big data are used to cross-verify the collected traffic counts including at gateways.

The updates to the model reflect an existing 2022 condition, with changes that help to streamline model run procedure and ease the model use for project application. The BCAG Model Development Report, which includes a detailed summary of the model development structure, model calibration, and validation, is available as Appendix D to this SEIR.

Potential Limitations of the Travel Demand Forecasting Model

The BCAG TDF Model has been developed for regional planning purposes within a trip-based model framework. The model conforms to the recommendations outlined in the 2024 Regional Transportation Guidelines for Group B2 metropolitan planning organization (MPO) but does have limitations.

- The current structure has limited sensitivity to factors that may affect trip generation rates such as significant declines in economic activity. (e.g., COVID-19 effects). However, since the model has a land use occupancy component, economic cycles can be reflected in the assumed intensity of land uses within the model.
- Although the model network includes all local roadways, not all local roadways are assigned vehicle trips. Use of the model for local applications will require sub-area refinements and validation to ensure the model is appropriately sensitive to changes at this scale.
- A new mode choice component was added to the v1.0 BCAG model which was originally prepared for 2020 RTP/SCS. However, due to the lack of more recent mode choice survey data, the base year 2022 condition is still calibrated based on the 2010-2012 California Household Travel Survey, which might not fully align with the current post-pandemic conditions. Future model updates would benefit from more current household travel surveys, on-board transit survey, and additional data sources such as Big Data.

- Model parameters relying on household travel survey data are based on a small sample size. The current household travel survey data is from 2010-2012 California Household Travel Survey which might be outdated especially with the travel behavior changes associated with post pandemic conditions. Additional big data (StreetLight Data, Inc.) is used to calibrate the model parameters to better reflect the base year 2022 condition. However, future model updates would benefit from a larger sample of households in Butte County and a more recent household travel survey.
- The trip-based model structure does not allow for complete estimates of forecasts of vehicle trips (VT) or vehicle miles traveled (VMT) generated by residential households or individual persons. Vehicle trips are assigned at the TAZ level and any connection to individual land uses that originally generated the trips are lost. VT and VMT can be expressed as ratios such as VMT per capita or VMT per household. But these ratios are based only on dividing total VMT by the number of people or households in the model area. It does not indicate the level of VT or VMT being generated.
- New technologies in the automotive market, such as autonomous vehicles (AV), are not currently included in the BCAG model. As AV penetration occurs and their operation on local roadways becomes more common, general travel behavior is expected to change. However, there is currently insufficient evidence or data to accurately assess the impact of AVs on trip generation and mode split, so AV technology is not incorporated in the current version of the BCAG model. As more data and studies on AVs become available, future updates to the model should consider including AVs in the model structure.

Performance Measures for Assessing the Transportation Impacts of the 2024 RTP/SCS

The impact analysis considers the roadway, transit, bicycle, pedestrian, aviation, agricultural, and goods movement components of the regional transportation system. Quantitative analysis focuses on total VMT and VMT per capita as a performance measure derived from the forecasting results of the BCAG TDF model. This approach is similar to what was conducted for the 2020 SEIR.

In addition to these quantitative measures, qualitative analysis is included to address the overall connectivity of the pedestrian and bicycle system and safety. Each of the quantitative and qualitative measures are described in more detail below.

Total Vehicle Miles Traveled

The basic measure of the amount of vehicle travel generated by the project is VMT, or vehicle miles traveled. Total VMT includes household generated VMT plus VMT from all other sources. Total VMT per capita is total VMT generated divided by the population of the zones in the study area (i.e., Butte County). Total VMT per capita is the measure used in the analysis of impacts for the 2024 RTP/SCS. Although the absolute amount total VMT is reported, impact analysis is based on VMT normalized to population rates. This metric provides a measure of travel efficiency and helps depict whether people are traveling more, or less, by vehicle over time. VMT per capita may decrease, even though the absolute amount of VMT may increase. A per capita decline in VMT indicates that the transportation network is operating more efficiently.

Congested Vehicle Miles of Travel

Congested Vehicle Miles of Travel (CVMT) is the portion of VMT traveling on freeways operating at or below 35 miles per hour (mph) during the AM or PM peak periods, as described in the revised

State Transportation Improvement Program (STIP) guidelines for evaluating congestion. In the BCAG TDF model scenarios analyzed, no freeways operate at or below 35 mph during the AM or PM peak periods.

Connectivity of the Region's Pedestrian and Bicycle System

The 2024 RTP/SCS contains a number of new and modified bicycle and pedestrian projects. These projects are generally designed to expand and complement the existing bicycle and pedestrian network. An objective of the 2024 RTP/SCS is to plan and develop a continuous and easily accessible pedestrian and bikeway network throughout the region.

Safety

Transportation safety is assessed based on how the 2024 RTP/SCS projects will comply with applicable design standards of the implementing agencies. As part of planning, design, and engineering for projects that result from the 2024 RTP/SCS, the implementing agency shall ensure that transportation systems and related issues are treated in accordance with applicable federal, state, and local laws and regulations.

e. Significance Thresholds

Pursuant to the *CEQA Guidelines*, potentially significant impacts to transportation would result if the project would:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)[1]
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access

Impacts associated with the 2024 RTP/SCS have been analyzed based on full implementation of the plan at a program level and are based on the multimodal project collectively, rather than impacts associated with each mode of travel individually.

[1] Section 15064.3 describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purpose of this section, "vehicle miles traveled" refers to the amount of distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) regarding lead agency discretion in determining the appropriate measure of transportation impacts for transportation projects, a project's effect on automobile delay shall not constitute a significant environmental impact. For the purposes of the EIR, consistency with CEQA Section 15064.3, implementation of the RTP-SCS would result in a significant impact under CEQA if it would substantially interfere with achievement of the VMT reductions set forth in CARB's 2017 Scoping Plan.

Threshold 1:	Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Impact TRA-1 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS UNDER THE 2024 RTP/SCS WOULD NOT RESULT IN ADDITIONAL CONFLICTS WITH PROGRAMS AND PLANS RELATED TO THE CIRCULATION SYSTEM, RELATIVE TO THE 2020 RTP/SCS. IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT.

Transit

The 2024 RTP/SCS reflects the 2021 Transit and Non-Motorized Transportation Plan, including short- and long-range transit goals, policies, actions, and projects to support population growth in Butte County. These actions include a focus on maximizing service efficiency, reliability, and effectiveness in ridership markets as well as expanding B-Line services into new areas and commuter rail between Oroville and Sacramento. Similar to the 2020 RTP/SCS, the 2024 RTP/SCS is supportive of public transit and would not disrupt or interfere with existing or planned public transit facilities. Therefore, the 2024 RTP/SCS would not introduce a new impact relative to the 2020 RTP/SCS and impacts would remain less than significant.

Bicycle and Pedestrian Facilities

The 2024 RTP/SCS includes goals, policies, actions, and projects to support non-motorized transportation for the region, including bicycle and pedestrian projects that would implement projects included in bicycle and non-motorized transportation plans in the county and incorporated cities. Since the 2024 RTP/SCS is designed to be consistent with adopted regional plans, including the 2021 Transit and Non-Motorized Transportation Plan, implementation of the plan would not disrupt or interfere with existing or planned bicycle and pedestrian facilities and would result in a less than significant impact.

Rail Transportation

The 2024 RTP/SCS encourages the use of alternative modes of transportation, including the use of rail, and includes a planned inter-city commuter rail service between Oroville, Marysville, and Sacramento, the North Valley Rail. However, no specific funded rail improvement projects are included in the 2024 RTP/SCS. Future train trips within the region are expected to minimally increase by 2040. The degree of potential traffic impacts resulting from the expansion of rail service would depend on current traffic conditions when additional service begins, the circulation pattern around the station, and any roadway improvements in the station area, which at this point is not known. It is not anticipated that vehicle trips generated by additional train trips would be significant. Impacts would be less than significant.

Aviation

The 2024 RTP/SCS encourages the use of alternative modes of transportation and supports aviation services in Butte County. However, no specific funded aviation improvement projects are included in the 2024 RTP/SCS. If air service were to increase at any of the airports in Butte County because of higher demand, it is not anticipated that vehicle trips generated by additional aircraft service would be significant. Therefore, the 2024 RTP/SCS would not introduce a new impact relative to the 2020 RTP/SCS.

Mitigation Measures

None required.

Threshold 2:	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Impact TRA-2 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS UNDER THE 2024 RTP/SCS HAVE THE POTENTIAL TO INTERFERE WITH ACHIEVEMENT OF THE VMT REDUCTIONS SET FORTH IN CARB'S 2022 SCOPING PLAN. MITIGATION MEASURE TRA-1 WOULD REDUCE IMPACTS TO LESS THAN SIGNIFICANT LEVELS FOR SOME PROJECTS, HOWEVER, ADDITIONAL STATE POLICY ACTIONS AND FUNDING WOULD BE REQUIRED TO CLOSE THE GAP AT THE STATE LEVEL. THEREFORE, IMPACTS WOULD BE SIMILAR TO THE 2020 RTP/SCS AND REMAIN SIGNIFICANT AND UNAVOIDABLE.

The 2024 RTP/SCS is based on planned population and employment growth in Butte County, consistent with the General Plans of Butte County and the Cities of Biggs, Chico, Gridley, Oroville, and Paradise. The total VMT in Butte County would increase in 2045 regardless of the potential implementation of the 2024 RTP/SCS. This increase is due to regional population growth that would occur in the County independent of policy and land use decisions by BCAG.

Table 4.9-1 Total Vehicle Miles Traveled – Butte County

Variable	Baseline (2022)	2045 Plus Project
Total VMT[1]	4,533,395	5,109,649
% Change from Baseline	N/A	12.7%
Population	197,020	243,499
Total VMT per Capita	**23.0**	**21.0**
% Change from Baseline		**-8.7%**

[1] Includes total VMT for Butte County. Estimates and forecasts from 2024 RTP/SCS BCAG travel demand forecasting model.

Source: Appendix D

VMT per capita is a proxy for the SB 375 metric of GHG based on VMT within Butte County. As shown within Table 4.9-1, compared to baseline 2022 conditions, VMT per capita is roughly 8.7 percent lower with implementation of the 2024 RTP/SCS. The VMT per capita decline indicates that the projected land use and planned transportation improvements assumed in the 2024 RTP/SCS would effectively work together to improve system efficiency, as compared to 2022 baseline conditions.

Notwithstanding past and projected progress on VMT reductions in the BCAG region, recent progress reports on the state's climate goals suggest that additional VMT reductions are required. Both in its target resetting process and in its 2022 progress report pursuant to SB 150, CARB noted:

- California is still not reducing GHG emissions from personal vehicle travel as needed to meet climate commitments and as targeted under SB 375. Per capita GHG emissions and per capita VMT continued to increase, though more slowly than in the 2018 Progress Report. Further, the 2019 data indicated that nearly all regions were far from achieving 2020 targets set by CARB
- Not only will California need full implementation of strategies in the SCSs and their associated VMT reductions to make progress toward these goals, the State will also need to identify ways

to get even more emission reductions from transportation and land use strategies to reduce VMT sufficiently by 2030 and 2045.

- California – at the state, regional, and local levels – has not yet gone far enough in making the systemic and structural changes to how we build and invest in communities that are needed to meet state climate goals. It will take collaboration among all these levels of government to achieve the state's climate goals because the MPOs do not have the land use authority or resources to meet this challenge alone.

The 2024 RTP/SCS's proposed 8.7 percent reduction in total VMT per capita by 2045 would not support achievement of the 14.3 percent identified by CARB statewide. As a result, the potential of the 2024 RTP/SCS land use pattern and transportation improvements to substantially interfere with achievement of the VMT reductions set forth in CARB's 2022 Scoping Plan (as part of the regional strategy) is considered potentially significant.

Mitigation Measures

The following mitigation measure would be required to address impacts from VMT.

Mitigation Measure T-1

The state recognized that additional state policy actions and funding would be required to close the VMT gap between what the MPOs could achieve through implementation of their SCSs, and reductions needed to meet state goals. Though the state must initiate these additional actions and funding programs, the exact form of the policies and funding programs must be collaboratively developed with input from MPOs, local agencies, and other organizations to ensure they provide the tools and incentives necessary to go beyond the SCSs in reducing VMT.

Consequently, BCAG shall work collaboratively with Butte County and the cities of Chico, Gridley, Oroville, Biggs, and Town of Paradise to support implementation of regional and local-level strategies and measures to achieve further VMT reductions. Implementing agencies (i.e., Butte County and the cities of Biggs, Chico, Gridley, Oroville, and Paradise) shall implement the following strategies to reduce VMT.

LOCAL-LEVEL

- Implementing agencies shall require implementation of VMT reduction strategies through transportation demand management (TDM) programs, impact fee programs, mitigation banks or exchange programs, in-lieu fee programs, or other land use project conditions that reduce VMT. Programs should be designed to reduce VMT from existing land uses, where feasible, and from new discretionary residential or employment land use projects. The following strategies from Quantifying Greenhouse Gas Mitigation Measure, CAPCOA, August 2010 were identified as strategies most suited to Butte County and the cities of Biggs, Chico, Gridley, Oroville, and Town of Paradise, given the rural and suburban land use context:
    1. **Increase diversity of land uses** – This strategy focuses on the inclusion of mixed uses within projects or in consideration of the surrounding area to minimize vehicle travel in terms of both the number of trips and the length of those trips.
    2. **Provide pedestrian network improvements** – This strategy focuses on creating a pedestrian network within the project and connecting to nearby destinations. Projects in Butte County tend to be small, so the emphasis of this strategy would likely be the construction of network improvements that connect the project site directly to nearby destinations.

Alternatively, implementation could occur through an impact fee program or benefit/assessment district targeted to various areas in the county designated for improvements through local or regional plans. Implementation of this strategy may require regional or local agency coordination and may not be applicable for all individual land use development projects.

3. **Provide traffic calming measures and low-stress bicycle network improvements** – This strategy combines the CAPCOA research focused on traffic calming with new research on providing a low-stress bicycle network. Traffic calming creates networks with low vehicle speeds and volumes that are more conducive to walking and bicycling. Building a low-stress bicycle network produces a similar outcome. Implementation options are similar to strategy 2 above. One potential change in this strategy over time is that e-bikes (and e-scooters) could extend the effective range of travel on the bicycle network, which could enhance the effectiveness of this strategy.
4. **Implement car-sharing program** – This strategy reduces the need to own a vehicle or reduces the number of vehicles owned by a household by making it convenient to access a shared vehicle for those trips where vehicle use is essential. Note that implementation of this strategy would require regional or local agency implementation and coordination and would not likely be applicable for individual development projects.
5. **Increase transit service frequency and speed** – This strategy focuses on improving transit service convenience and travel time competitiveness with driving. Given land use density in Butte County, this strategy may be limited to traditional commuter transit where trips can be pooled at the start and end locations or require new forms of demand-responsive transit service. The demand-responsive service could be provided as subsidized trips by contracting to private Transportation Network Companies (TNCs, such as Uber, Lyft, and Via) or taxi companies. Alternatively, a public transit operator could provide the subsidized service but would need to improve on traditional cost effectiveness by relying on TNC ride-hailing technology, using smaller vehicles sized to demand, and flexible driver employment terms where drivers are paid by trip versus by hour. Note that implementation of this strategy would require regional or local agency implementation, substantial changes to current transit practices, and would not likely be applicable for individual development projects.
6. **Implement subsidized or discounted transit program** – This strategy reduces the need to own a vehicle or reduces the number of vehicles owned by a household by incentivizing individuals to use transit for their daily commute. This strategy depends on the ultimate building tenants – whether residential landlords or businesses – and may require monitoring. This strategy also relies on B-Line continuing to provide similar or better service throughout the county, in terms of frequency and speed.
7. **Encourage telecommuting and alternative work schedules** – This strategy relies on effective internet access and speeds to individual project sites/buildings to provide the opportunity for telecommuting. The effectiveness of the strategy depends on the ultimate building tenants and the nature of work done by tenants' employees (can the work be done remotely in the first place?); two factors that should be considered for potential VMT reduction. Effectiveness may also be limited in more rural areas of the county with limited broadband internet access.
8. **Provide ride-sharing programs** – This strategy focuses on encouraging carpooling and vanpooling by project site/building tenants, which depends on the ultimate building tenants; this should be a factor in considering the potential VMT reduction.

REGIONAL

- Implementing agencies shall require project modifications during the project design and environmental review stage of project development that would reduce VMT effects. For roadway capacity expansion projects, this would include but is not limited to demand management through transportation systems management and operations (TSMO) including the use of pricing.

Significance After Mitigation

With implementation of Mitigation Measure T-1, this impact would be reduced to less than significant for some projects, although additional state policy actions and funding would be required to close the gap at the state level. For projects proposing to streamline environmental review, lead agencies must conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the impact to less than significant. However, BCAG cannot require Butte County and the cities of Biggs, Chico, Gridley, Oroville, and Paradise to adopt these mitigation measures, and it is ultimately the responsibility of these agencies to determine and adopt project-specific mitigation. Therefore, impacts would remain significant and unavoidable.

Threshold 3:	Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

Impact TRA-3 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS UNDER THE 2024 RTP/SCS WOULD NOT SUBSTANTIALLY INCREASE HAZARDS DUE TO GEOMETRIC DESIGN FEATURES (E.G., SHARE CURVES OR DANGEROUS INTERSECTIONS) OR INCOMPATIBLE USES (E.G., FARM EQUIPMENT) (LESS THAN SIGNIFICANT), RELATIVE TO THE 2020 RTP/SCS. IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT.

The 2024 RTP/SCS includes roadway projects designed to alleviate existing and anticipated future congestion issues and to reduce traffic hazards. For example, the 2024 RTP/SCS includes projects to widen roadways, improve intersections, and/or to add passing lanes; when warranted, installation of such improvements can substantially improve roadway safety. While the 2024 RTP/SCS includes numerous projects that would involve a design/engineering process, only some of the project-specific designs and plans for these improvements are available for analysis at this time. Consistent with agency practice, all improvements would be designed to the standards and specifications of Caltrans or the appropriate implementing agency. As such, the 2024 RTP/SCS is not anticipated to cause a substantial increase in hazards due to design features or incompatible uses. Therefore, the 2024 RTP/SCS would not introduce a new impact relative to the 2020 RTP/SCS and impacts would remain less than significant.

Mitigation Measures

None required.

Threshold 4: Would the project result in inadequate emergency access?

Impact TRA-4 IMPLEMENTATION OF PROPOSED TRANSPORTATION IMPROVEMENTS UNDER THE 2024 RTP/SCS WOULD NOT RESULT IN INADEQUATE EMERGENCY ACCESS, RELATIVE TO THE 2020 RTP/SCS. IMPACTS WOULD REMAIN LESS THAN SIGNIFICANT.

In the short-term, implementation of the 2024 RTP/SCS would have the potential to affect emergency access during construction of individual projects included in the 2024 RTP/SCS. The implementing agency for each improvement project would be responsible for coordinating with the emergency service providers to ensure that emergency routes remain available. In the long-term, the 2024 RTP/SCS does not include any specific projects that would result in inadequate emergency access. Therefore, the 2024 RTP/SCS would not introduce a new impact relative to the 2020 RTP/SCS and impacts would remain less than significant.

Mitigation Measures

None required.

4.10 Wildfire

This section identifies and evaluates issues related to wildfire in the context of the 2024 RTP/SCS. The section discusses the environmental and regulatory setting; the criteria used to determine the significance of environmental impacts related to wildfire; and potential impacts related to wildfire that would result from implementation of the 2024 RTP/SCS.

4.10.1 Environmental Setting

Wildfire Fundamentals

A wildfire is an uncontrolled fire in an area of extensive combustible fuel, including vegetation and structures. Wildfires differ from other fires in that they take place outdoors in areas of grassland, woodlands, brushland, scrubland, peatland, and other wooded areas that act as a source of fuel, or combustible material. Buildings may become involved if a wildfire spreads to adjacent communities. The primary factors that increase an area's susceptibility to wildfire include slope and topography, vegetation type and condition, and weather and atmospheric conditions. Regions of dense dry vegetation, particularly in canyon areas and on hillsides, pose the greatest potential for wildfire risks. Additional factors that increase an urban area's susceptibility to wildfire are development patterns and density, building types, and building materials.

The effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying natural resources, post-fire conditions leave exposed slopes and hillsides vulnerable to surface erosion and runoff. Soil exposed to intense heat may lose its capacity to absorb moisture and support life. Debris flows during post-fire rainy seasons can pose a risk to life and property and occur with little warning. Wildfires also have negative impacts on air quality. Exposure to smoke and particulate matter has immediate and long-term public health impacts; populations may suffer from eye irritations, respiratory problems, and complications to existing lung and heart conditions.

Wildfire has three basic elements: how and where its ignition occurred; how and why it moves across a landscape from its point of origin; and what the fire's nature is upon arrival at a location. In general, a fire's nature is defined by eight characteristics:

- Direction of the advance of the fire front
- Speed of the advance of the fire front (rate of spread)
- Mechanism causing the advance
- Duration at any one location
- Structure-related consumption of fuels
- Flame length
- Intensity
- Gaining control

A fire front's direction of travel is primarily determined by direction of prevailing winds, geographic aspect, and condition of the fuels in the advance direction of the fire. The speed of a fire front's advance is a result of conditions at the site of the currently burning material and of lands in the advance direction of the fire. As a fire advances, the overriding influences determining its speed are prevailing wind speed, terrain slope gradient, dominant fuel size classes, and fuel continuity.

Wildfires advance by two principal mechanisms - combustion resulting from radiant heating and remote ignition resulting from ember production. Fire stays at one location primarily due to the size class of the material being consumed. Grass formations are dominated by low volumes of very "fine" fuels and, depending on the level of dryness, can be consumed, with the fire advancing, in a matter of minutes. On the other hand, tree-dominated vegetation has significantly greater volumes of available fuel and a far greater amount of larger-sized fuel components. Fires can remain at these locations for days, often weeks, and sometimes months (on heavily-wooded conifer sites)

Fires burn where fuels are available. Fires in grasslands burn at a level set by the height of the grass, while fires in brushlands can burn surface fuels and typically consume the stems and leafy crowns to the full height of the plants. Fires in tree-dominated vegetation have a much more complex pattern of movement based primarily on the continuity (or "connectedness") of the fuels. In these stands, there are typically three distinct layers of fuels, arranged vertically - surface, stems and trunks, and the crown, which is composed of branches, twigs, and leaves. The continuity of fuels is important to consider in both horizontal and vertical directions. If a fire enters a stand and is advancing only as a surface fire, it will continue this manner of advance if there is high horizontal fuel connectivity. However, if there is also a high degree of vertical continuity (provided by fuels referred to as "ladder fuels"), then a fire can move up into the crown as well as forward across the surface, involving fuels in the entire stand structure.

Flame lengths are generally determined by the volume of fuels burning, the amount of time to total consumption, and the height of the species in the composition. Grassland may produce flame lengths typically ranging from one to three feet as they are composed of low volumes of fine materials that are consumed quickly. Flame lengths are at their maximum when the material is dry. Stands of brush can produce flame lengths from 4 to 10 feet. Native oak-dominated hardwood stands can generate 20- to 40-foot flame lengths, and stands of exotics, such as *Eucalyptus globulus* or *E. cinerea*, or dense conifer stands can generate flame lengths over 100 feet. Flame length is important because it sets the distance over which radiant heating-related combustion can occur.

The temperature achieved in a wildfire is directly related to the amount of cellulosic material available for consumption. Grasslands have very low amounts and attain lower temperatures but woodlands, characterized by large amounts of highly-concentrated cellulosic material, can attain temperatures on the order of 1,800 degrees Fahrenheit.

Gaining control over a wildfire's behavioral character is the objective of response efforts. Grassland fires, burning in low fuel volume, rapid consumption, and at a single level, are the easiest to bring under control. On the other end, fires that are burning in high fuel volumes, full spectrum size classes, and entire stand structure involvement can require days, weeks, or even months to bring under complete control.

Wildland-Urban Interface

The Wildland Urban Interface (WUI) is the area where human development meets wildland vegetation, and it is typically characterized by a mix of residential, commercial, and natural land uses. The California Department of Forestry and Fire Protection (CAL FIRE) uses a combination of housing density, Fire Hazard Severity Zone (FHSZ) classification, and vegetation lifeform criteria for mapping WUIs as part of their Fire and Resource Assessment Program. The WUI is particularly vulnerable to wildfire because it combines the presence of human-built structures with the presence of combustible vegetation and other wildfire fuels. Pursuant to CAL FIRE, an area must meet all of the following criteria in order to be considered a WUI (CAL FIRE 2019a):

- Minimum housing density of one unit per 20 acres
- In a moderate, high, or very high FHSZ
- Not dominated by wildland vegetation (herbaceous, hardwood, conifer, shrub)

The Wildland Urban Intermix is a similar term commonly used interchangeably with WUI, although it is typically represented by areas with much higher vegetation density among built infrastructure. Pursuant to CAL FIRE, an area must meet all of the following criteria in order to be considered Wildland Urban Intermix (CAL FIRE 2019a):

- Areas not designated WUI
- Minimum housing density between one unit per 20 acres and one unit per five acres OR greater than one unit per five acres in areas dominated by wildland vegetation
- In a moderate, high, or very high FHSZ
- Includes improved parcels only

CAL FIRE has also identified Wildfire Influence Zones as wildfire-susceptible vegetation up to 1.5 miles from areas designated as a WUI or Wildland Urban Intermix (CAL FIRE 2019a). These zones essentially serve as a buffer to these two designations.

The 2019 Butte County Local Hazard Mitigation Plan (LHMP) defines WUIs as the "true urban interface where development abruptly meets wildland." In Butte County this includes large areas in the center of the county, primarily located along the Sierra Nevada foothills. The Town of Paradise and the community of Paradise Pines are considered WUI areas.

The LHMP defines the wildland urban intermix as rural, low density communities where homes are intermixed in wildland areas. Wildland urban intermix environments in Butte County include the communities of Cohasset, Forest Ranch, Concow, Yankee Hill, Berry Creek, and Forbestown.

Wildfire-Conducive Conditions

Significant portions of Butte County are prone to wildfire due to the county's vast wildland areas and hillside terrain. The county experiences hot summers with low humidity that dry out vegetation. North wind events, with wind originating from the south and sweeping to the northwest carries hot, dry air throughout the county in the fall, the driest months of the year. Historically, Butte County has experienced fires that burn more than 5,000 acres every few years. Fires of this size have generally been clustered, with multiple fires that burned more than 5,000 acres occurring in a single year (Butte County 2019). One of the most recent fires of this magnitude was the Dixie Fire in 2021, which burned 963,309 acres, the largest single fire in California history. In addition, one of the most catastrophic fires in the county occurred in 2018, the Camp Fire, which devastated the Town of Paradise, burning 153,336 acres and 18,800 structures, and resulting in 85 fatalities(Butte Country 2022).

Vegetation

Vegetation is fuel to a wildfire, and it changes over time with seasonal growth and die-back. The relationship between vegetation and wildfire is complex, but generally some vegetation is naturally fire-resistant, while some vegetation is extremely flammable. For example, cured grass is much more flammable than standing trees. Grass is considered an open fuel, in which oxygen has free access to promote the spread of fire. Additionally, weather and climate conditions, such as drought, can lead to increasingly dry vegetation with low moisture content and, thus, higher flammability.

Butte County contains a range of vegetation types, from grass and chaparral brush in lower elevation areas to oak woodland and mixed conifer timber in higher elevation areas. In western Butte County the valley and lower foothill areas, areas less than 1,000 feet in elevation, are covered in dead grasses and leaf litter. The mid-foothill and lower mountain areas, generally between 1,000 and 2,000 feet in elevation, are dominated by brush and mountainous areas, 2,000 feet in elevation and higher, are covered by timberland.

Slope, Elevation, and Aspect

Slope can determine how quickly a fire spreads. Fire typically burns faster uphill, because it can pre-heat the fuels above with rising hot air, and upward drafts are more likely to create fire spots. (National Park Service 2017). Areas containing steep, rugged terrain can also hinder access and the use of heavy firefighting equipment, posing additional difficulties for firefighting efforts. Following severe wildfires, sloping land is also more susceptible to landslide or flooding from increased runoff during substantial precipitation events. Landslides and surficial slope failure are most likely to occur in areas with more than 25 percent slope (hillside areas) and along steep bluffs.

Elevation affects fire behavior by influencing the timing and amount of precipitation as well as exposure to prevailing winds. Aspect is the direction a slope faces, which determines how much radiated heat the slope will receive from the sun. Slopes facing south to southwest will receive the most solar radiation; thus, they tend to be warmer and the vegetation drier than on slopes facing a northerly to northeasterly direction, creating a higher potential for wildfire ignition and spread (University of California Berkeley 2018). Most of the eastern portion of the county consists of foothills and mountains of the Sierra Nevadas and southern Cascade ranges. River drainages in these areas include deep and very steep areas, particularly within the Feather River watershed, Butte Creek, and Big Chico Creek.

Climate and Weather

Wind, temperature, and relative humidity are the most influential weather elements in fire behavior and susceptibility (National Park Service 2017). Fire moves faster under hot, dry, and windy conditions. Wind may also blow embers ahead of a fire, causing its spread. In addition, drought conditions lead to extended periods of excessively dry vegetation, increasing the fuel load and ignition potential.

Butte County experiences cool, wet winters and hot, dry summers. Weather patterns during summer months consist of high and very high temperatures, with many days exceeding 100 degrees Fahrenheit, low humidity, and light to moderate south winds. In the fall, north wind events can exceed 50 miles per hour and continue the pattern of high temperatures and low humidity.

There are two weather stations, [Chico Municipal [1993] and Oroville [1998]], in Butte County. Table 4.10-1 presents wind data from the two stations and includes the primary wind source directions and average wind speed. The data has been further broken out into two seasonal periods: March to October (which roughly corresponds to the fire season) and the wetter months between November and April.

Table 4.10-1 Wind Data Table

	Seasonal Period			
	March – October		November – April	
Station	PWD	AWS (mph)	PWD	AWS (mph)
Chico Municipal	Southeast	8.2	Southeast	7.3
Oroville	South – Southeast	6.6	South – Southeast	5.9

PWD = wind source direction, AWS = average wind speed, mph = miles per hour
Source: Iowa State University IEM 2024

Power Lines

Above-ground power lines have the potential to contribute to wildfire risk, especially when they are near or traverse wilderness areas. In some instances, high winds can blow nearby trees and branches into power lines, sparking fires. Wind can also snap wooden poles, causing live wires to fall onto nearby grass or other fuel, igniting it. While the California Public Utilities Commission (CPUC) estimates only about 10 percent of California's wildfires are triggered by power lines, the frequency and severity of these wildfires has spurred the agency to promulgate new requirements for power line safety practices (Atkinson 2018).

Historically, overhead distribution powerlines have been identified as the cause for multiple large wildfires in Butte County, including the Camp Fire and Dixie Fire. Since these fires, the Pacific Gas & Electric Company (PG&E) has begun to underground existing powerlines in the county in an effort to reduce wildfire risk.

Wildfire Hazard Designations

In California, state and local agencies share responsibility for wildfire prevention and suppression, and federal agencies take part as well. Federal agencies are responsible for oversight of federal lands in Federal Responsibility Areas (FRA). The State of California has determined that some non-federal lands in unincorporated areas with watershed value are of statewide interest and have classified those lands as State Responsibility Areas (SRA). CAL FIRE manages SRAs. All incorporated areas and unincorporated lands not in FRAs or SRAs are classified as Local Responsibility Areas (LRA).

While nearly all of California is subject to some degree of wildfire hazard, there are specific features that make certain areas more hazardous. CAL FIRE is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors (Public Resources Code (PRC) Sections 4201 through 4204; California Government Code Sections 51175-89). As described previously, the primary factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. CAL FIRE maps fire hazards as zones, referred to as Fire Hazard Severity Zones (FHSZ). There are three levels of severity – Moderate, High, and Very High. Only the Very High FHSZs (VHFHSZ) are mapped for LRAs while all three FHSZs are mapped for SRAs. As of January 2022, California law requires CAL FIRE to map the Moderate and High FHSZ in addition to the Very High FHSZ for LRAs. Updates to the CAL FIRE FHSZ maps were completed in 2024 (CAL FIRE 2023b).

Each of the FHSZs influence how people construct buildings and protect property to reduce risk associated with wildland fires. Under state regulations, areas within VHFHSZs must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life in those areas. However, none of the fire zones specifically prohibit development or

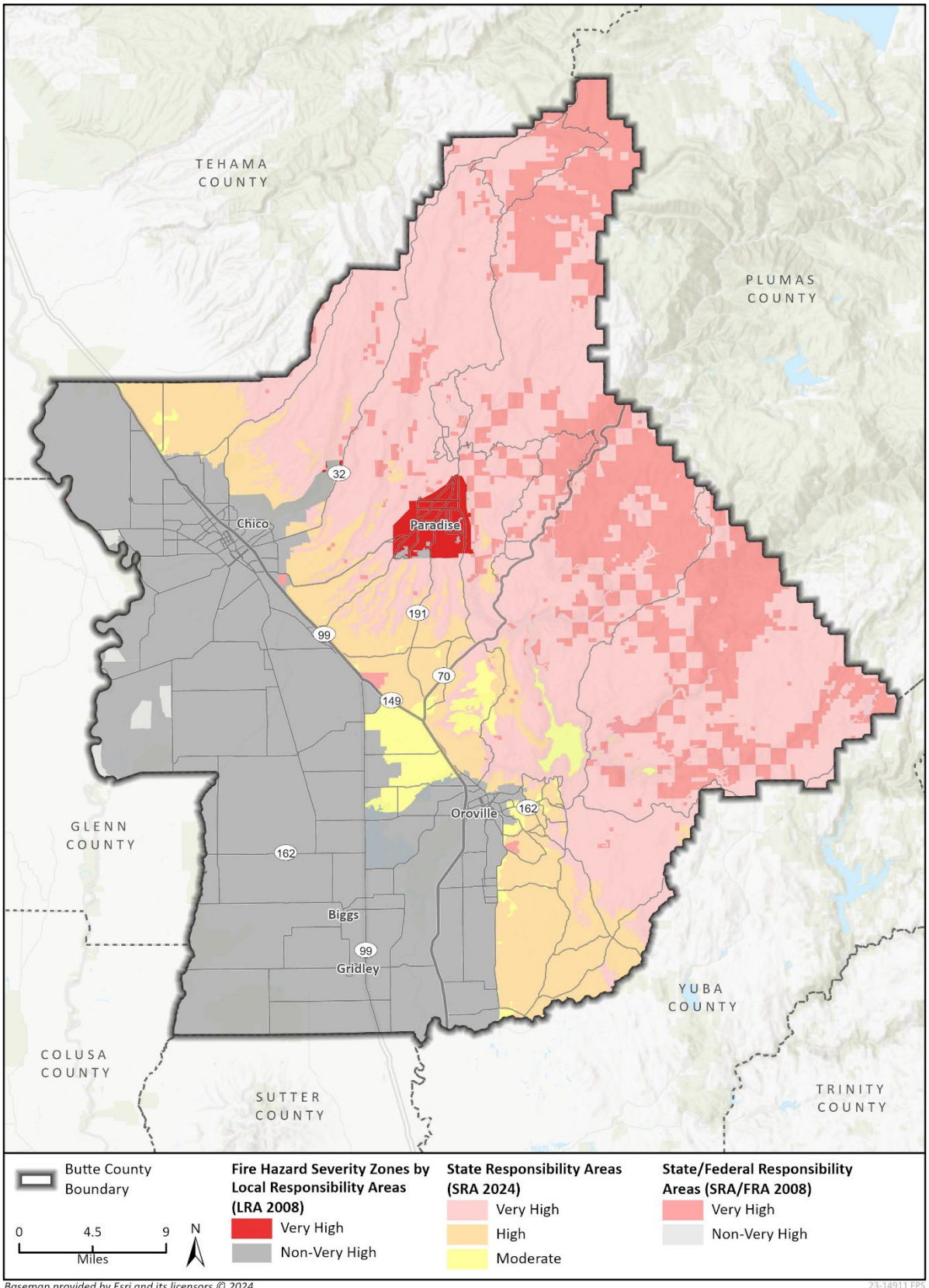
construction. To reduce fire risk under state regulations, areas in VHFHSZs must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life in those areas.

Throughout the BCAG region, there is a full range of conditions and fire hazards as indicated in the applicable Fire Hazard Severity Zone Maps for the region. According to the Butte County Fire Hazard Severity Zones in SRA, most of the eastern half of the county is designated a Very High Fire Hazard Severity Zone, with the majority of that being within CAL FIRE responsibility (CAL FIRE 2024). Figure 4.10-1 displays the fire hazard severity zones for Butte County.

Fire History

Table HS-5 of the Butte County General Plan Health and Safety Element identifies the most destructive fires in the county since 1917, based on the total burned acres for each wildfire event. The three most destructive fires in Butte County were the Camp Fire in 2018 (153,336 acres burned), North Complex Fire in 2020 (318,935 acres burned), and the Dixie Fire in 2021 (963,309 acres burned) (Butte County 2019). In the 2019 Butte County LHMP, Table 4-50 identifies the largest wildfires from 1910 to 2018. Similar to the Safety Element, the largest wildfire in Butte County was the Camp Fire in 2018. Based on environmental conditions within the county and the history of occurrence in the past, the LHMP states that the likelihood of future occurrence of wildfires is highly likely for Butte County. The LHMP notes that “threat of wildfire and potential losses are constantly increasing as human development and population increase and the wildland urban interface areas expand (Butte County 2019).

Figure 4.10-1 Butte County Fire Hazard Severity Zones



a. Post-fire Slope Instability and Drainage Pattern Changes

Vegetation loss from wildfire scarring of the landscape can result in slope instability in the form of more intensive flooding and landslides. These post-fire slope soils and altered drainage patterns can result in soil creep on downslope sides of foundations and reduce lateral support.

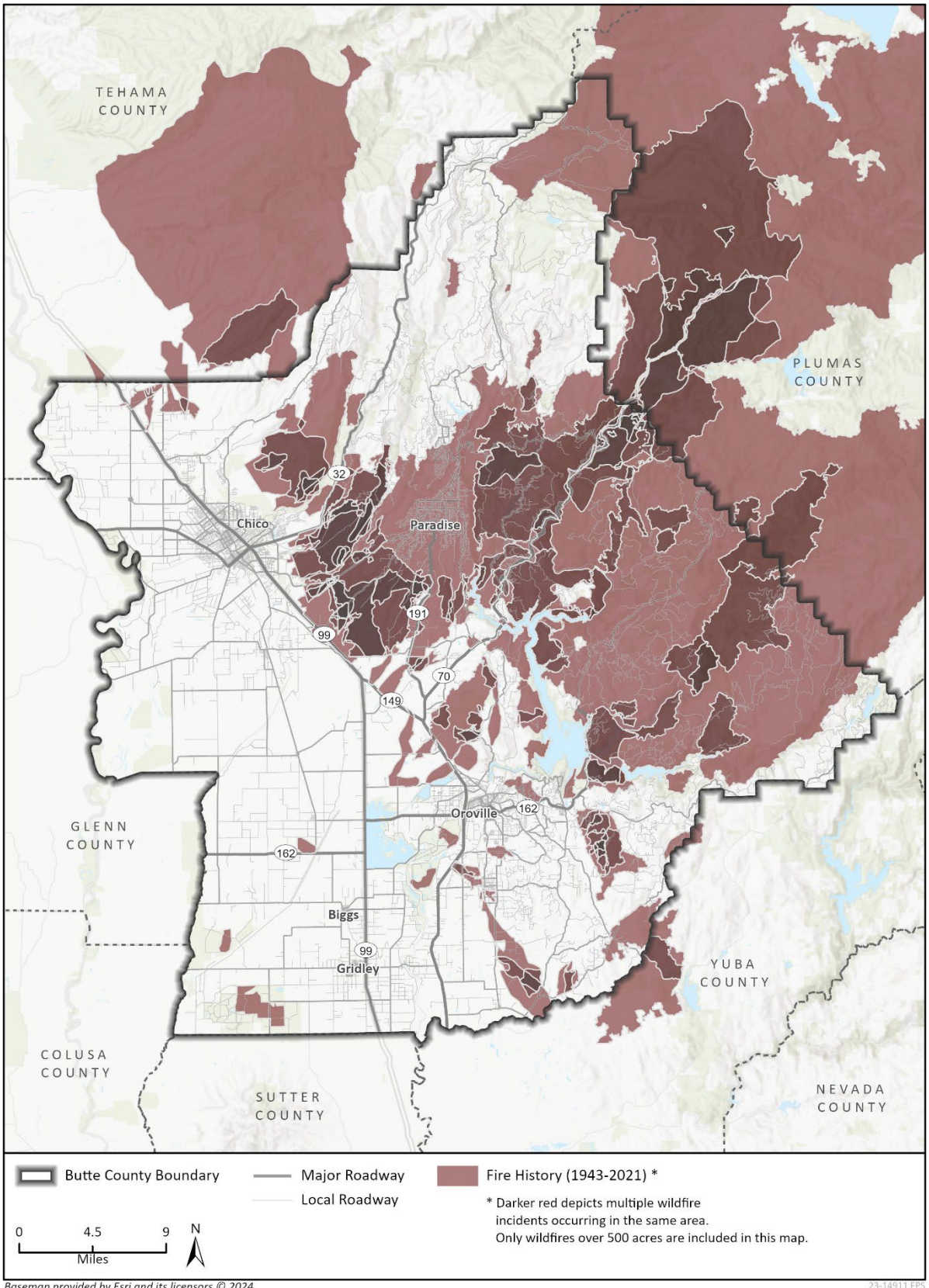
The topography of Butte County contains hillsides, mountains, and other topographically pronounced areas. Landslides in these areas may result from heavy rain, erosion, removal of vegetation, seismic activity, wildfire, or combinations of these and other factors. Wildfires in hilly and mountainous areas can result in the removal of vegetation that holds hillsides together during rainstorms, leading to landslides and decries flows. The LHMP provides landslide and debris flow mapping as a result of the 2018 Camp Fire and 2017 Cherokee Fire. In some areas affected by these fires, the likelihood of debris flow has increased between 20 and 40 percent in the event of a rainstorm with a peak 15-minute rainfall intensity of 24 millimeters per hour as a result of these fires, and up to 80 percent in some of the areas affected by the Camp Fire (Butte County 2019).

b. Fire Protection Services

Butte County is served by the Butte County Cooperative Fire Protection, a regional fire protection system consisting of 6 entities: the CAL FIRE Butte Unit, Butte County Fire Department, Gridley Fire Department, Biggs Fire Department, Oroville Fire Department, and the Town of Paradise Fire Department. The City of Chico maintains a separate fire department, the Chico Fire Department. The BCFD provides protection to the unincorporated areas of Butte County, the Cities of Biggs and Gridley, and the Town of Paradise. CAL FIRE maintains automatic aid agreements with all fire agencies within Butte County and also protects federal lands under the California Fire Management Agreement, including the Lassen National Forest, Plumas National Forest, United States Fish and Wildlife, and Bureau of Land Management (Butte County 2022).

The Butte County Cooperative Fire Protection manages 24 fire stations staffed by career firefighters and 16 stations operated by volunteers with up to 388 uniformed personnel the summer, 15 civilian personnel, and 140 county volunteers. The Butte County Cooperative Fire Protection maintains 29 front line fire engines, 21 volunteer fire engines, 2 aerial 110-foot ladder trucks, an air tactical plane, and an air tanker (CAL FIRE 2022). The Chico Fire Department includes 4 fire stations with 54 firefighters, 7 volunteer firefighters, 4 fire engines, and a fire truck (Butte County 2022).

Figure 4.10-2 Butte County Fire History



Basemap provided by Esri and its licensors © 2024.
Additional data provided by CALFIRE, FRAP, 2023.

23-14911 EPS
Fig X Fire History

4.10.2 Regulatory Setting

a. Federal Regulations

Federal Disaster Mitigation Act

The Disaster Mitigation Act of 2000 provided a new set of mitigation plan requirements that encourage state and local jurisdictions to coordinate disaster mitigation planning and implementation. States are encouraged to complete a "Standard" or an "Enhanced" Natural Mitigation Plan. "Enhanced" plans demonstrate increased coordination of mitigation activities at the state level and, if completed and approved, increase the amount of funding through the Hazard Mitigation Grant Program. The State of California Multi-Hazard Mitigation Plan (SHMP) complies with this act.

National Fire Plan

The National Fire Plan was developed in response to Executive Order 11246 in August 2000, following a historic wildland fire season. Its intent was to establish plans for active response to severe wildland fires and their impacts to communities, while ensuring sufficient firefighting capacity. The plan addresses firefighting, rehabilitation hazardous fuels reduction, community assistance, and accountability. The plan promotes close coordination among local, state, tribal, and federal firefighting resources by conducting training, purchasing equipment, and providing prevention activities on a cost-share basis. To help protect people and their property from potential catastrophic wildfire, the National Fire Plan directs funding to be provided for projects designed to reduce the fire risks to communities. High-risk communities identified in the wildland-urban interface, the area where homes and wildlands intermix, were published in the Federal Register in 2001. At the request of Congress, the Federal Register notice only listed those communities neighboring federal lands (United States Department of Agriculture and United States Department of the Interior 2002). CAL FIRE incorporates concepts from this plan into state fire planning efforts (CAL FIRE 2018b).

b. State Regulations

California Code of Regulations, Title 14

The California Code of Regulations (CCR), Title 14, Division 1.5 provides fire safe regulations related to emergency access, address signage, and water standards. These regulations establish minimum wildfire protection standards for construction and development within the SRA and VHFHSZs. The standards include basic emergency access and perimeter wildfire protection measures, signage and building numbering, water supply resources for emergency fire use, and vegetation modification. They also include a minimum setback of 30 feet for all buildings from property lines and/or the center of a road and provide defensible space requirements for areas within 30 feet of a structure (Zone 1) and between 30 and 100 feet from a structure (Zone 2).

California Fire Code

The California Fire Code (CFC) is Chapter 9 of CCR Title 24 and is based on the International Fire Code. The CFC establishes the minimum requirements consistent with nationally-recognized good practices to safeguard public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises and to provide

safety and assistance to firefighters and emergency responders during emergency operations. The CFC uses a hazard classification system to determine what protective measures are required to ensure fire safety and protect lives. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure these safety measures are met, the CFC employs a permit system based on hazard classification.

More specifically, CFC Chapter 8 addresses fire-related interior finishes; Chapter 9 addresses fire protection systems; and Chapter 10 addresses fire-related means of egress. CFC Chapter 49 also contains regulations for vegetation and fuel management to maintain clearances around structures. These requirements establish minimum standards to protect buildings in FHSZs in SRAs, LRAs, and wildland-urban interface fire areas.

California Strategic Fire Plan

The 2019 Strategic Plan prepared by CAL FIRE and the California Natural Resources Agency lays out central goals for reducing and preventing the impacts of fire in the state. The goals are meant to establish a natural environment that is more resilient and human-made assets that are more resistant to the occurrence and effects of wildland fire through local, state, federal, and private partnerships (CAL FIRE 2018b). In addition to the 2019 Strategic Plan for California, individual CAL FIRE units develop fire plans, which are strategic documents that establish a set of tools for each CAL FIRE unit for its local area. Updated annually, unit fire plans identify wildfire protection areas, initial attack success, assets and infrastructure at risk, pre-fire management strategies, and accountability in their unit's geographical boundaries. The unit fire plan identifies strategic areas for pre-fire planning and fuel treatment as defined by the people who live and work locally. The unit fire plans include contributions from local collaborators and stakeholders and are aligned with other plans applicable to the area.

California Multi-Hazard Mitigation Plan

The California Governor's Office of Emergency Services (Cal OES) prepares the SHMP, which identifies hazard risks and includes a vulnerability analysis and a hazard mitigation strategy for the state (Cal OES 2023). The SHMP is required under the Disaster Mitigation Act of 2000 for the State to receive federal funding through the Hazard Mitigation Grant Program and disaster assistance. The SHMP represents the state's primary hazard mitigation guidance document, providing an updated analysis of the state's historical and current hazards, hazard mitigation goals and objectives, and hazard mitigation strategies and actions. The SHMP represents the State's overall commitment to supporting a comprehensive mitigation strategy to reduce or eliminate potential risks and impacts of disasters in order to promote faster recovery after disasters and, overall, a more resilient state. SHMPs are required to meet the elements outlined in the Federal Emergency Management Agency's (FEMA) State Mitigation Plan Review Guide.

Cal OES is responsible for the development and maintenance of the State's plan for hazard mitigation. The State's SHMP was last approved by FEMA as an Enhanced State Mitigation Plan in 2023. The plan is designed to reduce the effects of disasters caused by natural, technological, accidental, and adversarial/human-caused hazards. The SHMP sets the mitigation priorities, strategies, and actions for the state. The plan also describes how risk assessment and mitigation strategy information is coordinated and linked from local mitigation plans into the SHMP and provides a resource for local planners to obtain risk information that may affect their planning area. The State of California is required to review and revise its mitigation plan and resubmit for FEMA

approval at least every five years to ensure continued funding eligibility for certain federal grant programs.

State Emergency Plan

The foundation of California's emergency planning and response is a statewide mutual aid system, designed to ensure adequate resources, facilities, and other support is provided to jurisdictions whenever their own resources prove to be inadequate to cope with an emergency situation.

The California Disaster and Civil Defense Master Mutual Aid Agreement (California Government Code Sections 8555 through 8561) requires signatories to the agreement to prepare operational plans to use in their jurisdiction and outside their area. These operational plans include fire and non-fire emergencies related to natural, technological, and war contingencies. The State of California, all state agencies, all political subdivisions, and all fire districts signed this agreement in 1950.

The State of California Emergency Plan (SEP) describes how response to natural or human-caused emergencies occurs in California. The plan is a requirement of the California Emergency Services Act and describes methods for conducting emergency operations, the process for rendering mutual aid, emergency services of government agencies, how resources are mobilized, how the public is informed, and how continuity of government is maintained during emergency. The SEP further describes hazard mitigation (actions to reduce risk), as well as preparedness and recovery from disasters. (Cal OES 2017)

California Government Code Section 8568, the California Emergency Services Act, states "the State Emergency Plan shall be in effect in each political subdivision of the state, and the governing body of each political subdivision shall take such action as may be necessary to carry out the provisions thereof." The Act provides the basic authorities for conducting emergency operations following the proclamations of emergencies by the Governor or appropriate local authority, such as a City Manager. The provisions of the Act are further reflected and expanded on by appropriate local emergency ordinances. The Act further describes the function and operations of government at all levels during extraordinary emergencies.

All local emergency plans are extensions of the State of California Emergency Plan. The State Emergency Plan conforms to the requirements of California's Standardized Emergency Management System (SEMS), which is the system required by California Government Code Section 8607(a) for managing emergencies involving multiple jurisdictions and agencies. The SEMS incorporates the functions and principles of the Incident Command System, the Master Mutual Aid Agreement, existing mutual aid systems, the operational area concept, and multi-agency or inter-agency coordination. Local governments must use SEMS to be eligible for funding of their response-related personnel costs under state disaster assistance programs. The SEMS consists of five organizational levels that are activated as necessary, including: field response, local government, operational area, regional, and State. Cal OES divides the state into several mutual aid regions. Butte County is located in the Inland Region, currently coordinated by Thomas Graham (Cal OES 2024).

California Public Resource Code

The California Public Resource Code (PRC) includes fire safety regulations for forest, range, and forage lands that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that use an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire

suppression equipment that must be provided on-site for various types of work in fire-prone areas. These regulations include the following:

- On days when a burning permit is required, flammable materials shall be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and fire suppression equipment shall be available in the immediate area (PRC Section 4427)
- During the highest fire danger period from April 1 to December 1, no person except for an emergency crew member or those under or contracted with a publicly or privately-owned utility shall use tools powered by an internal combustion engine in any industrial operation located on or near any forest, brush, or grass-covered land, and appropriate fire suppression equipment shall be made immediately available (PRC Section 4428)
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials (PRC Section 4431)
- Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442)

In addition, PRC Section 4290 establishes minimum wildfire protection standards in conjunction with building, construction, and development in SRAs and VHFHSZs in LRAs. Under PRC Section 4290, the design and construction of structures, subdivisions, and developments in SRAs must provide for basic emergency access and specified perimeter wildfire protection measures. These measures provide for road standards for emergency access, signing and building numbering, water supply reserves, and fuel breaks and greenbelts and are known as the State Minimum Fire Safe Regulations.

Executive Order N-05-19

On January 9, 2019, Governor Gavin Newsom issued Executive Order N-05-19 to address wildfire in California. Executive Order N-05-19 directs CAL FIRE, in consultation with other state agencies and departments, to recommend immediate-, medium-, and long-term actions to help prevent destructive wildfires. In response, CAL FIRE created the Community Wildfire Prevention and Mitigation Report, which contains recommendations to reduce the damage from wildfires across the state. Specifically, they focus on reducing wildfire fuel (such as vegetation clearing), long-term community protection (creating defensible space in communities), wildfire prevention, and forest health (CAL FIRE 2023a).

Government Code Section 51182

According to California Government Code Section 51182, a person who owns, leases, controls, operates, or maintains an occupied dwelling or occupied structure in, upon, or adjoining a mountainous area, forest-covered land, brush-covered land, grass-covered land, or land that is covered with flammable material, or land that is in a VHFHSZ shall, at all times, do all of the following:

1. Maintain defensible space of 100 feet from each side and from the front and rear of the structure.
2. Remove that portion of trees that extends within 10 feet of the outlet of a chimney or stovepipe.

3. Maintain trees, shrubs, or other plants adjacent to or overhanging a building free of dead or dying wood.
4. Maintain the roof of a structure free of leaves, needles, or other vegetative materials.
5. Prior to constructing a new dwelling or structure that will be occupied or rebuilding an occupied dwelling or occupied structure damaged by a fire in that zone, the construction or rebuilding of which requires a building permit, obtain a certification from the local building official that the dwelling or structure, as proposed to be built, complies with all applicable state and local building standards.

SB 1241 (2012)

Senate Bill (SB) 1241 requires cities and counties in SRAs and VHFHSZs to address fire risk in the safety element of their general plans and requires the California Office of Planning and Research to develop guidelines in conjunction with CAL FIRE to ensure wildfire risk is adequately evaluated under CEQA. SB 1241 also resulted in amendments to the CEQA Guidelines in 2018 to include questions related to fire hazard impacts for projects located in or near lands classified as SRAs and VHFHSZs. In adopting these amendments, the California Office of Planning and Research recognized low-density, leapfrog development may create higher wildfire risks than high-density, infill development.

AB 2911 (2018)

Following the devastating 2017 fire season, AB 2911 was adopted to improve fire safety in subdivision developments. AB 2911 requires the State Board of Forestry and Fire Protection, in consultation with the State Fire Marshal, to survey local governments, including counties, cities, and fire districts, to identify existing subdivisions located in SRAs or VHFHSZs that are without a secondary means of egress route and are at significant fire risk. Through this Subdivision Review Program, the State Board of Forestry and Fire Protection works with local governments and agencies on a project-by-project basis to develop recommendations to create secondary access to the subdivision, improvements to existing access roads, and other fire safety measures.

Local Regulations

CITY AND COUNTY GENERAL PLANS

Local planning policies related to wildfire hazards are established in each jurisdiction's general plan, generally in the Safety Element or equivalent chapter. For emergency services, some of the relevant policies include coordinating with other agencies that are responsible for planning medical facilities to meet the health care needs of residents in the region, retaining hospitals, evaluating medical facility proposals, providing emergency response services and participating in mutual-aid agreements.

The Butte County General Plan Health and Safety Element contains goals and policies with the specific intention of reducing the region's risk of fire hazards. For instance, Policy HS-P11.1 stipulates that "Fire hazard risk mitigation shall be considered in all land use and zoning decisions, environmental review, subdivisions review, and the provision of public services." (Butte County 2023). Similarly, the Chico General Plan Safety Element contains policies aimed at incorporating fire safety measures when considering development, such as Policy S-4.3 which calls for support of standards and programs that reduce fire hazards (City of Chico 2017). The Biggs General Plan also contains objectives, policies, and implementation measures intending to incorporate applicable fire

safety standards into new development and to manage vegetation to reduce fire hazards, such as Policy S-4.4 and S-4.5 (City of Biggs 2014). The Gridley General Plan Safety Element contains two policies (Safety Policies 4.1 and 4.2) specifically related to fire hazards that call for requiring development standards that are based on CAL FIRE recommendations, and to consult with fire protection service providers when reviewing development proposals (City of Gridley 2009). Finally, the Town of Paradise General Plan includes policies in both the Land Use and Safety Elements related to maintaining effective fire prevention and response services, ensuring development projects plan for potential fire hazards, and coordination between departments and agencies for mitigation and response (Town of Paradise 2008).

Furthermore, Senate Bill 1241 (SB 1241) requires that housing element updates after 2014 include revisions that address the risk of fire in SRAs and very-high fire hazard severity zones. These revisions must take into account specified considerations, including the provisions outlined in "Fire Hazard Planning" by the Governor's Office of Planning and Research.

LOCAL HAZARD MITIGATION PLAN

Local jurisdictions develop, adopt and update hazard mitigation plans to establish guiding principles for reducing hazard risk, as well as specific mitigation actions to eliminate or reduce identified vulnerabilities. The Butte County Local Hazard Mitigation Plan (2019) serves to reduce or eliminate long-term risk to people and property from natural hazards and their effects in the BCAG region, including the unincorporated county; cities of Biggs, Chico, Gridley, Oroville; town of Paradise; and various utility and park districts in the county. The plan includes goals and policies to reduce the fire severity and intensity in the county through wildfire prevention, fuels management, and maintenance of evacuation routes. The Local Hazard Mitigation Plan is required to be updated every five years and is currently in the process of being updated at the time of this EIR.

Butte County Emergency Operations Plan

The Butte County Emergency Operations Plan (EOP) addresses the County planned response to extraordinary emergency situations associated with natural disasters, technological incidents and national security emergencies in or affecting the Butte County Operational Area which includes the unincorporated areas of the County of Butte and the incorporated areas of the Cities of Chico, Oroville, Gridley, Biggs and the Town of Paradise. The EOP provides year-round preparedness guidance as well as specific guidance to emergency personnel activated in the event of an emergency to save lives, enhance the health of its citizens, protect property and the environment, and preserve local culture and heritage.

Butte County Code Chapter 38A

The Butte County Code Chapter 38A, Fire Prevention and Protection Ordinance, establishes requirements to reduce wildfire risk and minimize the spread of fires within the unincorporated parts of the county by implementing defensible space standards. Property owners are required to maintain a five-foot radius free of combustible material around structures and a 100-foot firebreak around structures. Chapter 38A also includes standards related to vegetation management around travel ways, such as driveways and roads, and undeveloped properties. This ordinance is enforced by the Butte County Code Enforcement Division (Butte County 2021).

Community Wildfire Protection Plan

The Butte County Community Wildfire Protection Plan (CWPP) provides a framework for mitigation the risks and impacts associated with wildfire in Butte County. The CWPP was developed through a collaborative process with the various fire agencies in the county, the Butte County Fire Safe Council, and the public. This Plan outlines actions jurisdictions and agencies can and should take to improve fire resistance and fire resilience and identifies existing resources and assets throughout the county for fire prevention and protection (Butte County 2022).

4.10.3 Impact Analysis

c. Methodology and Significance Thresholds

Pursuant to the *CEQA Guidelines*, potentially significant impacts to wildfire would result if the project, if located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would:

- Substantially impair an adopted emergency response plan or emergency evacuation plan.
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Impacts related to wildfire were determined to be less than significant in the 2020 SEIR. The previous 2016 EIR did not address wildfire impacts in an individual section, as this issue area was added to the CEQA Checklist as a standalone resource as part of the December 2018 CEQA Guidelines update. The methodology used for the following evaluation is based on a review of documents and publicly available information about wildfire conditions in the BCAG region to determine the potential for implementation of the 2024 RTP/SCS to result in increased wildfire risks. This includes city and county planning documents. This program-level analysis is based on an overall understanding of the key fire safety concerns that could result from implementation of the 2024 RTP/SCS. The evaluation of wildfire impacts reasonably assumes that construction and development under the 2024 RTP/SCS would adhere to the latest federal, state and local regulations, and conform to the latest required standards in the industry, as appropriate for individual projects.

d. Project Impacts and Mitigation Measures

This section describes generalized impacts associated with the 2024 RTP/SCS. Due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific impacts associated with individual transportation and land use projects is not possible. In general, however, implementation of proposed transportation improvements and future projects under the land use scenario envisioned by the 2024 RTP/SCS would result in wildfire impacts as described in the following section.

Threshold 1:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Impact W-1 THE 2024 RTP/SCS, WHICH INCLUDES PROJECTS WITHIN AREAS OF MODERATE, HIGH, AND VERY HIGH FIRE HAZARD SEVERITY ZONES, WOULD NOT SUBSTANTIALLY IMPAIR AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As shown in Figure 4.10-1, CAL FIRE has classified much of eastern Butte County as having a high or very high fire hazard, in FRAs, SRAs, and LRAs. The Town of Paradise is a designated very high fire hazard severity in an LRA. The remaining very high fire hazard severity zone areas are in SRAs and FRAs in the eastern half of the county. Moderate fire hazard severity zones in SRAs are primarily located northeast and northwest of Oroville, east of State Route 149, south of State Route 70, and east of State Route 162. High fire hazard severity zones in SRAs are located in the center of the county, east of State Route 99 in the northern half of the county and east of State Route 149 in the southern half.

The land use scenario envisioned by the 2024 RTP/SCS concentrates the forecasted population and employment growth in urban areas and corridors of the County, such as incorporated cities, unincorporated towns, and major roadways, where the risk of wildfire is less than in more rural areas where fuels are more abundant. However, as evidenced by the 2018 Camp Fire, urban areas are also susceptible to wildfires, despite the lower abundancy of typical wildfire fuels. This land use scenario is similar to that contained in the 2020 RTP/SCS, which concentrates the forecasted regional population and employment growth in urban areas and corridors of the county while preserving the distinct identity of existing cities and towns. However, not all projects and development included in the 2024 RTP/SCS would be infill projects in urbanized areas, and some projects would inevitably be located in areas at risk of wildfires. Additionally, CAL FIRE has mapped some urbanized areas within the region as moderate, high, or very high fire hazard severity zones (Figure 4.10-1), and, as evidenced by the 2018 Camp Fire, urban areas are still at risk from wildfire.

The 2024 RTP/SCS falls within the jurisdiction of the Butte County EOP which addresses the County planned response to emergency situations associated with natural disasters such as wildfire prevention and protection, emergency access, and emergency response. The County's EOP provides direction and guidance to emergency personnel in the event of an emergency, such as a wildfire, including emergency response procedures, evacuation procedures, and communication with the public. In addition, the RTP/SCS would be subject to the Butte County LHMP which includes goals actions to reduce the risk and impact of wildfires, including actions related to fuel reduction and defensible space. Further, the general plan of each local agency contains policies and actions related to wildfire prevention and suppression measures, evacuation routes, fuel management, emergency response, emergency water flow, road and access standards, and fire safe building construction. Requirements to adhere to the local hazards mitigation plan, as well as the local general plan policies and programs aimed at reducing the risk of wildfires through land use compatibility, training, sustainable development, brush management, public outreach and service standards for fire departments would ensure that the project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Impact W-2 THE 2024 RTP/SCS, WHICH INCLUDES PROJECTS IN OR NEAR SRAS AND LANDS CLASSIFIED AS VHFHSZS, COULD EXACERBATE WILDFIRE RISK AND THEREBY COULD EXPOSE PEOPLE TO POLLUTANT CONCENTRATIONS FROM A WILDFIRE OR THE UNCONTROLLED SPREAD OF A WILDFIRE DUE TO SLOPE, PREVAILING WINDS, AND OTHER FACTORS. IMPLEMENTATION OF MITIGATION MEASURE WF-1 WOULD BE REQUIRED. HOWEVER, IMPACTS WOULD REMAIN SIGNIFICANT AND UNAVOIDABLE.

The 2024 RTP/SCS supports concentrated population and employment growth in urban areas and corridors of the County, including incorporated cities, unincorporated towns, and major roadways, where the risk of wildfire is less than in more rural areas where fuels are more abundant. However, some projects included in the 2024 RTP/SCS would be located in hillside areas and areas with a history of wildfires. These projects may include vegetated slopes and would potentially be subject to seasonal high winds that could exacerbate wildfire risks.

The eastern part of Butte County consists of foothills and mountains of the Sierra Nevadas and southern Cascade ranges which feature deep and very steep slopes. In addition, wind events exceeding 50 miles per hour are common during the fall months, along with high temperatures and low humidity. Major vegetation types found in Butte County include grasses, brush, and timberland. Combined, these factors have the potential to exacerbate fire conditions within the county. People residing within and proximate to these areas could be exposed to pollutants in the event of a wildfire.

In addition to the Butte County General Plan Safety Element, the Butte County LHMP contains policies and actions to mitigate wildfire risk and protect people and property from wildfires. The Butte County CWPP and Butte County Code Chapter 38A provide standards related to vegetation management and defensible space with the goal of minimizing wildfire risk and spread of wildfires. Property owners and developers are required to adhere to standards related to wildfires outlined within these plans and ordinances (Butte County 2021). The Planning and Building Departments of Butte County and each local jurisdiction within Butte County enforce policies related to mitigating wildfire risk throughout the land use entitlement and building permitting processes. County and local Building and Code Enforcement Departments are responsible for ensuring development adheres to the CBC, including relevant fire codes. Requirements related to vegetation management and defensible space are regulated by relevant fire agencies, including the Butte County Fire Marshalls Office and CAL FIRE Butte Unit. Development projects included in the 2024 RTP/SCS would be required to comply with these regulations.

Projects under the 2024 RTP/SCS would also be required to adhere to State and federal regulations related to wildfire. This includes approval of plans and specifications to verify compliance with applicable codes, including the following:

- Title 24, CCR, Building Regulations
- International Fire Code/California Fire Code
- National Fire Codes of the National Fire Protection Association

- Title 19, CCR, Public Safety
- Title 8, CCR, Occupational Safety
- California Health and Safety Code

The CFC includes safety measures to minimize the threat of fire, including ignition-resistant construction with exterior walls of noncombustible or ignition resistant material from the surface of the ground to the roof system and sealing any gaps around doors, windows, eaves and vents to prevent intrusion by flame or embers, automatic interior and exterior fire sprinklers, a robust water delivery system, fire apparatus access, and defensible space. The CBC includes specific standards related to exterior wildfire exposure and CCR Title 14 sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent loss of structures or life by reducing wildfire hazards.

Land use development projects in the 2024 RTP/SCS (including any land use development projects from the 2016 RTP/SCS and 2020 RTP/SCS that have not been constructed) that would be located within or less than 2 miles from an SRA or very high fire hazard severity zones, would have potentially significant wildfire impacts, as existing codes and regulations cannot fully prevent wildfires from damaging structures or populations. These projects would increase the exposure of transportation infrastructure to risk of loss or damage from wildfire. Mitigation Measure WF-1 is provided below to reduce the risk of wildfire for these projects. However, it should be noted that land use and transportation projects located outside of or more than 2 miles from an SRA or very high fire hazard severity zones would not require mitigation.

The construction and operation of projects under the 2024 RTP/SCS would be required to adhere to the policies and actions within each of these plans. In addition, new construction would be subject to the California Fire Code, which includes safety measures to minimize the threat of fire, including ignition-resistant construction with exterior walls of noncombustible or ignition resistant material from the surface of the ground to the roof system and sealing any gaps around doors, windows, eaves and vents to prevent intrusion by flame or embers. Title 14 of the California Code of Regulations sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent loss of structures or life by reducing wildfire hazards. The codes and regulations would reduce the risk of loss, injury or death from wildfire for new development envisioned by the 2024 RTP/SCS, but not entirely, thus mitigation is required.

During construction, projects included in the 2024 RTP/SCS would result in a temporary increase in human activity and potential ignition sources, including equipment that could create spark, be a source of heat, or leak flammable materials on the project site. Heat or sparks from construction equipment, vehicles, and the use of flammable hazardous materials have potential to ignite adjacent vegetation and start a fire, especially during weather events that include low-humidity and high wind speeds. Operation of projects in the 2024 RTP/SCS could involve the introduction of new potential ignition sources in the form of building materials, vegetation for landscaping, vehicles, and small machinery for building and landscape maintenance. The potential risk of wildfire ignition and spread associated with project construction and operation could be significant, and mitigation would be required. Projects under the 2024 RTP/SCS would be required to implement Mitigation Measure WF-1 to reduce the risk of wildfire, which requires equipment spark arrestors, red-flag restrictions, clear access roads, fire protection and safety equipment, fire hardening of structures, implementation of defensible space, adequate ingress/egress, on-site water supply, and limiting development in fire prone areas.

Mitigation Measures

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measure for the 2024 RTP/SCS where applicable for land use and transportation projects that result in impacts related to wildfire. Cities and counties in the Butte County region should implement these measures, where are relevant to land use projects implementing the 2024 RTP/SCS. Project-specific environmental documents may adjust this mitigation measure as necessary to respond to site-specific conditions.

W-1 Wildfire Risk Reduction

If an individual transportation or land use project included in the 2024 RTP/SCS is located within or less than 2 miles from an SRA or very high fire hazard severity zones, the implementing agency shall require appropriate mitigation to reduce the risk. Examples of site-specific and project-specific actions may include some of, but are not limited to, the following measures, which are in accordance with the California Attorney General Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act:

- Increasing housing density and consolidated design, relying on higher density infill developments as much as possible
- Avoidance and minimization of low-density exurban development patterns or leapfrog-type developments (i.e., those with undeveloped wildland between developed areas)
- Decreasing the extent and amount of "edge," or interface area, where development is adjacent to undeveloped wildlands
- Creation of buffer zones and defensible space within and adjacent to the development, with particular attention to ensuring that vegetation will not touch structures or overhang roofs. It is also important that legal obligations are structured so that defensible space measures are retained over time
- Siting projects to maximize the role of low-flammability landscape features that may buffer the development from fire spread
- Undergrounding power lines
- Limiting development along steep slopes and amidst rugged terrain, so as to decrease exposure to rapid fire spread and increase accessibility for fire-fighting
- Placement of development close to existing or planned ingress/egress and designated evacuation routes to efficiently evacuate the project population and the existing community population, consistent with evacuation plans, while simultaneously allowing emergency access
- Placement of projects close to adequate emergency services
- Construction of additional points of ingress and egress and modification of evacuation routes to minimize or avoid increasing evacuation times or emergency access response times
- Fire hardening structures and homes—upgrading the building materials and installation techniques to increase the structure's resistance to heat, flames, and embers—beyond what is required in applicable building codes, both for new structures and existing structures in proximity to the new development
- Requiring fire-hardened communication to the project site including high-speed internet service
- Enhanced communication to the project population about emergency evacuation plans and evacuation zones
- Parking limitations to ensure access roads are not clogged with parked vehicles

- On-site water supply/storage to augment ordinary supplies that may be lost during a wildfire

Significance After Mitigation

With implementation of this mitigation, the risk of loss of structures and transportation infrastructure and the risk of injury or death due to wildfires would be reduced. These measures would make structures and transportation infrastructure more fire resistant and less vulnerable to loss in the event of a wildfire. These measures would also reduce the potential for construction of 2024 RTP/SCS projects to inadvertently ignite a wildfire. However, it is not possible to prevent a significant risk of wildfires or fully protect people and structures from the risks of wildfires, despite implementation of mitigation. Thus, this impact would remain significant and unavoidable. No additional mitigation measures to reduce this impact to less than significant levels are feasible.

Threshold 3:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Impact W-3 THE 2024 RTP/SCS, WHICH INCLUDES PROJECTS IN OR NEAR SRAS AND LANDS CLASSIFIED AS VHFHSZS, WOULD REQUIRE THE INSTALLATION AND MAINTENANCE OF ASSOCIATED INFRASTRUCTURE (SUCH AS ROADS, FUEL BREAKS, POWER LINES, AND OTHER UTILITIES). HOWEVER, THESE PROJECTS WOULD INCLUDE PROJECT SPECIFIC FIRE PROTECTION MEASURES THAT WOULD REDUCE FIRE RISK.

Projects included in the 2024 RTP/SCS would be served by existing roads, power lines, water sources, and other utilities and would involve the installation of new or extended utility infrastructure. Infrastructure required and constructed for projects under the 2024 RTP/SCS would include water, sewer, stormwater, electrical power, natural gas, fire protection, and roads. Projects included in the 2024 RTP/SCS also consist of the construction of new and expanded infrastructure, including transit, passenger rail, and bicycle and pedestrian infrastructure. New construction would be required to adhere to CBC, which includes standards for the implementation of fire protection systems, such as installation of hydrants and fire sprinklers for new structures. Development under the 2024 RTP/SCS would also be required to maintain defensible space standards and implement hazardous vegetation management, consistent with County and local municipal code, General Plans, and LHMP. Implementation of fire protection systems and vegetation management would decrease wildfire risk over existing conditions.

Projects included in the 2024 RTP/SCS, such as new traffic management systems, transit centers, and passenger rail infrastructure, may require installation or maintenance of additional distribution lines to connect new structures and infrastructure to the existing utility grid. However, these projects would be constructed in accordance with all local and state regulations pertaining to power lines and other related infrastructure and fire suppression requirements.

Furthermore, these projects would be required to provide site access for fire fighters and to maintain fuel modification zones, irrigated landscaped areas, and paths and roads that would provide buffers and decrease fire risk to the project and adjacent uses. None of the potential infrastructure improvements would exacerbate fire risk or result in additional temporary or ongoing impacts to the environment beyond those already identified and disclosed throughout this SEIR. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 4:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Impact W-4 THE 2024 RTP/SCS, WHICH INCLUDES PROJECTS IN OR NEAR SRAS AND LANDS CLASSIFIED AS VHFHSZS, COULD EXPOSE PEOPLE OR STRUCTURES TO SIGNIFICANT RISKS ,INCLUDING DOWNSLOPES OR DOWNSTREAM FLOODING OR LANDSLIDES, AS A RESULT OF RUNOFF, POST-FIRE SLOPE INSTABILITY, OR DRAINAGE CHANGES. IMPLEMENTATION OF MITIGATION MEASURE WF-1 AND WF-2 WOULD REDUCE IMPACTS TO LESS THAN SIGNIFICANT WITH MITIGATION.

Vegetation on hillslopes helps to stabilize soil, slow water flow, and support percolation into the soil. Severe wildfires damage trees, the shrub canopy, vegetation, and soil. Once vegetation burns, a greater surface area of soil is exposed to the elements, and the lack of roots decreases the structural integrity of the soil. Thus, wildfire burn areas typically endure an increased runoff after intense rainfall, which can put residences and structures downslope of a burned area at risk of localized floods and landslides.

Projects included in the 2024 RTP/SCS would conform to design requirements associated with proper site preparation and grading practices and would implement surface drainage improvements and erosion control measures as well as construction best management practices (BMPs). Construction BMPs would be implemented during grading operations to stabilize graded slopes and prevent excessive runoff and erosion. In addition, Policy HS-P7.1 and Policy HS-P8.1 of the Health and Safety Element, require site specific geotechnical investigations for development in areas that have moderate to high and high landslide potential or very high erosion potential, as shown in Figure HS-7 and Figure HS-8 in the Health and Safety Element.

The 2024 RTP/SCS concentrates the forecasted population and employment growth in urban areas and corridors of the County, such as incorporated cities, unincorporated towns, and major roadways, where landslide risk is considered low according to the LHMP. However, some projects included in the 2024 RTP/SCS would be located in areas with moderate to high risk of landslides. Under the 2024 RTP/SCS, projects' slopes would manage runoff through implementation of a project specific SWPPP and BMPs designed to remove water from slopes in a controlled manner.

In general, steep, hilly areas are especially vulnerable after a wildfire and areas burned at moderate to high severity are of greatest concern due to lack of cover and the development of water repellent layers. If a severe wildfire were to occur, this impact would be significant, and slope stability could be compromised to a degree that slope stabilization measures would become necessary. Mitigation Measure WF-2 is provided below to reduce the risk of post-fire landslide and flood by requiring the County and/or local jurisdictions to identify areas where people or structures could be exposed to risk of flooding or landslides as a result of wildfires.

Mitigation Measures

BCAG shall and transportation project sponsor agencies can and should implement mitigation measured WF-1 and WF-2 for the 2024 RTP/SCS where applicable for land use and transportation projects that result in impacts related to wildfire. Cities and counties in the Butte County region should implement these measures, where relevant to land use projects implementing the 2024 RTP/SCS. Project-specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions.

WF-2 Post-Fire Landslide, Erosion, and Flood Mitigation

Following a major wildfire, Butte County, and/or the relevant local jurisdiction, shall perform an assessment of landslide, erosion, and flood risk in impacted areas. The assessment shall consider slope, rainfall, and changes in surface or sub-surface runoff patterns. The County or local jurisdiction shall also develop and implement a plan to mitigate the risk of landslide or flooding, including implementing a monitoring and early warning system to alert the community of possible flood or debris flow events.

Significance After Mitigation

With implementation of mitigation measures WF-1 and WF-2, exposure of people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes would be reduced. These mitigation measures would help identify areas at risk of post-fire landslide or flooding and would regulate and limit development in areas of greater risk. Therefore, impacts would be less than significant with mitigation.

4.11 Other Environmental Issue Areas Analyzed

CEQA Guidelines Section 15128 requires an EIR to briefly describe any possible significant effects that were determined not to be significant and, therefore, were not discussed in detail. This section addresses the potential environmental effects of the 2024 RTP/SCS that clearly would not be significant and are not addressed in the preceding sections of this SEIR. The purpose of the 2024 RTP/SCS SEIR is to augment the previously certified EIR for the 2020 RTP/SCS and to analyze changes in the 2020 RTP/SCS or changes in circumstances under which the RTP/SCS projects would be implemented since certification of the previous 2020 SEIR. Therefore, for issue areas where impacts would be similar to or less than the impact level identified in the previous 2020 SEIR, no further analysis is warranted. Thus, impacts determined to be less than significant in the 2020 RTP/SCS SEIR are included in this section, along with applicable previously certified mitigation measures to reduce impacts.

The discussion is based on the thresholds contained in the *CEQA Guidelines* Appendix G. Any items not addressed in this section are addressed in Sections 4.1 through 4.10 of this SEIR.

4.11.1 Aesthetics

Appendix G of the *CEQA Guidelines* states that a significant impact on aesthetics may result if the project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

Butte County contains many scenic resources including Table Mountain Spring Floral Area, Central Buttes, Sacramento River National Wildlife Refuge, Butte Creek Canyon, Lake Oroville, Philbrook Reservoir, and Feather Falls Scenic Area Features (Butte County 2023). Transportation projects included in the 2024 RTP/SCS could adversely affect scenic vistas and resources and degrade the existing visual quality of an area. Increases in the dimensions of existing routes and structural rehabilitations could entail the removal of existing vegetation and/or open space that lines scenic roadways, altering scenic views. However, the incorporation of Mitigation Measures AES-1(a) and AES-1(b) would reduce the impacts to scenic resources and the visual character of the area to less than significant.

BCAG recommends that project sponsors (those lead agencies overseeing implementation of individual transportation projects) implement the following mitigation measures for applicable transportation projects. These measures can and should be implemented for all projects developed pursuant to the 2024 RTP/SCS that would adversely affect scenic vistas and resources and degrade the existing visual quality.

AES-1(a) Where a particular 2024 RTP/SCS 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.

Butte County does not contain any State designated scenic highways. The County has designated six scenic routes within Butte County: Portions of State Route (SR) 32 north of Chico, portions of SR 70 north of the SR 149 intersection, the Skyway with it expansive views of the Northern Sacramento Valley and Coast Range, the southern portions of SR 191 and Pentz Road, the portion of SR 162 along Lake Oroville, and portions of Forbestown Road and Lumpkin Road. SR 70 north of 149 is an eligible State Scenic Highway; however, it has not been officially designated (Butte County 2023). In addition, the Feather River Canyon, from SR 149 through the eastern county boundary to US 395, SR 70 is designated the Feather River Scenic Byway, a Forest Service Byway that parallels the ex-Western Pacific Railroad's Feather River Route (US DOT 2024). These resources have the potential to be significantly impacted by implementation of transportation improvements, through the removal of vegetation, addition of safety barriers and sound walls, or the incremental transformation in visual character from rural to more urban. However, the incorporation of Mitigation Measures AES-2(a) and AES-2(b) would reduce impacts to less than significant.

BCAG recommends that project sponsors implement the following mitigation measures for applicable transportation projects. These measures can and should be implemented for all projects developed pursuant to the 2024 RTP-SCS that would adversely affect scenic resources.

AES-2(a) 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-2(b) 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 feature 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.

Transportation projects have the potential to create new light sources that could affect nighttime views. The addition of street lighting that spills onto adjacent properties could be introduced, which would alter nighttime views, particularly on scenic routes. The incorporation of Mitigation Measure AES-3 would reduce these effects to less than significant. BCAG recommends that project sponsors implement the following mitigation measure for applicable transportation projects. This measure can and should be implemented for all projects developed pursuant to the 2024 RTP-SCS that would create new light sources that could affect nighttime views.

AES-3 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.

4.11.2 Forest Resources

Appendix G of the *CEQA Guidelines* states that a significant impact on forest resources may result if the project would:

- 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));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use.

Butte County has a long growing season and deep soils, which creates good growing conditions for mixed conifer forest in the northeastern portion of the county. Forests in the Plan Area are dominated by sugar pine, ponderosa pine, Douglas fir, white fir, and incense cedar; therefore, timber production occurs in the Plan Area. Timberlands occur on both public and private lands, with some logging controlled by the United States Forest Service (USFS) and some regulated by the California Department of Forestry and Fire Protection (CalFIRE). In order for any forestland to be converted from timber production to an alternate use, a Timberland Conversion Permit (TCP) would need to be issued by CalFIRE, which acts as the lead agency under CEQA for forestland, with the County being the responsible agency. In order for a TCP to be approved by CalFIRE, the project plan must incorporate mitigation measures to substantially lessen or avoid environmental impacts. The 2024 RTP/SCS would not conflict with forestland or timberland and any projects that would occur in forestland or timberland as a result of the 2024 RTP/SCS would be required to adhere to USFS and/or CalFIRE requirements including the preparation of TCP if applicable. Thus, impacts related to forestland or timberland would be less than significant.

4.11.3 Geology and Soils

Appendix G of the *CEQA Guidelines* states that a significant impact on geology and soils may result if the project would:

- Directly or indirectly cause 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;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property;
- 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; or
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Impacts to paleontological resources and unique geologic features are analyzed in Section 4.4, *Cultural Resources*, consistent with the 2020 RTP/SCS EIR. Additionally, the 2024 RTP/SCS does not propose to install septic systems for any new or modified projects or as part of the RTP/SCS. There would be no impact.

The Cleveland Hills fault is the only active fault in Butte County identified by the Alquist-Priolo Earthquake Fault Zoning Map (Butte County 2023). Seismic activity can also be caused by faults located as far as 100 miles away, including Coast Ranges faults, the San Andreas Fault, the Midland-Sweitzer Fault, the Melones Fault zone, and Eastern Sierra faults. Smaller active faults are also present in Butte County and surrounding areas that could be potentially active. Future seismic events could significantly impact Butte County and earthquakes with a magnitude of up to 7.0 are possible. Butte County is also susceptible to liquefaction, landslides, erosion, expansive soils, and subsidence (Butte County 2023). While transportation projects in the 2020 RTP/SCS have the potential to be exposed to these hazards, the incorporation of mitigation measures GEO-1(a) and GEO-1(b) included in the 2016 RTP/SCS Initial Study would reduce the impact to less than significant.

Mitigation Measure

The following mitigation measures included in the 2020 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2016 RTP/SCS EIR for projects that could potentially be adversely affected by seismic ground shaking, liquefaction, seiches, landslides, erosion, expansive soils, and/or subsidence.

GEO-1(a) For a 2024 RTP/SCS project involving a bridge, the lead agency 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 ground shaking zones. This can be accomplished through the placement of conditions on the project by the lead agency during individual environmental review.

GEO-1(b) For a 2024 RTP/SCS project that involves cut slopes over 15 feet in height, the lead agency shall ensure that specific slope stabilization studies are conducted. Possible stabilization methods include buttresses, retaining walls, and soldier piles.

Significance After Mitigation

Implementation of Mitigation Measure GEO-1 requires bridge projects to be designed in accordance with geotechnical studies conducted for each individual project site and requires slope stabilization

studies for projects involving cut slopes over 15 feet in height. Compliance with the above mitigation measure and all existing state, local and/or federal regulations would reduce impacts to a less-than-significant-level.

4.11.4 Hazards and Hazardous Materials

The *CEQA Guidelines* Appendix G states that a significant impact on hazards and hazardous materials may result if the project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- 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, result in a safety hazard or excessive noise for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Transportation projects under the 2024 RTP/SCS could potentially facilitate the transport of hazardous materials on roadways in the Plan Area but would not directly result in a transportation related hazards. All transport of hazardous materials would be required to comply 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. This would ensure that the transport of hazardous materials, the handling of hazardous substances within proximity to schools, and the release of hazardous materials would be adequately controlled such that impacts would be less than significant.

With respect to hazardous materials sites listed under Government Code Section 65962.5, the majority of transportation improvements involve modification of existing facilities, rather than construction of new facilities, and would not occur on known hazardous sites (California Department of Toxic Substances 2024; State Water Resources Control Board 2024). With regard to future projects that would develop new facilities, because of the programmatic nature of the project, it is not possible to determine with accuracy whether future projects located on previously undisturbed land would contain hazardous materials. However, the sponsor 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 2024 RTP/SCS are not substantially different from those included in the 2020 RTP/SCS, no new or substantially more severe impacts would occur compared

to the 2020 RTP/SCS as evaluated in the 2020 RTP/SCS SEIR. Impacts would be less than significant. Impacts would be less than significant.

New projects proposed under the 2024 RTP/SCS may be located within an airport land use plan or within two miles of a public airport or public use airport, including the Chico, Paradise, and Ranchaero Airports. However, no new projects listed in the 2024 RTP/SCS compared to the 2020 RTP/SCS would directly expose people or create a new airport safety hazard. Impacts would be less than significant.

The implementation of the 2024 RTP/SCS would not have an adverse effect on adopted emergency response plans or emergency evacuation plans. By improving roadways and circulation in the Plan Area, there could be a beneficial impact on emergency response and evacuation. Impacts would be less than significant.

In light of recent wildfire events in California and particularly in Butte County, transportation improvement projects and the land use scenario envisioned by the 2024 RTP/SCS would potentially increase wildland fire risk or increase exposure of people or structures to wildland fires. A detailed analysis of the potential for significant risk of loss, injury, or death involving wildland fires is included in Section 4.10, *Wildfire*.

4.11.5 Hydrology and Water Quality

The *CEQA Guidelines* Appendix G states that a significant impact on hydrology and water quality may result if the project would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface of ground water quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:
  - Result in substantial erosion or siltation on- or off-site;
  - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
  - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
  - Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Drainage patterns may be altered as a result of projects associated with the 2024 RTP/SCS. Projects may introduce impervious surfaces in undeveloped areas, which could result in increased surface runoff that has the potential to affect surface water quantities, result in changes to absorption rates, discharge degraded surface water quality, affect the capacity of existing or planned drainage systems, and/or create erosion. Therefore, implementation of proposed transportation improvements and future projects associated with the 2024 RTP/SCS would result in both short-

term and long-term impacts to water quality. Due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific impacts of individual transportation projects on water quality is not possible at this time. However, the general nature of water quality impacts are described below.

Certain transportation improvements, such as road widening and expansion, as well as infill projects, would increase overall impervious surface area throughout the County. These projects may generate significant adverse impacts to surface water quality. Pollutants and chemicals associated with urban activities would run off new roadways and other impervious surfaces flowing into nearby bodies of water during storm events. These pollutants would include but are not limited to: heavy metals from auto emissions, oil, grease, debris, and air pollution residues. Such contaminated urban runoff may remain largely untreated, thus resulting in the incremental long-term degradation of water quality.

Short-term adverse impacts to surface water quality may also occur during the construction periods of individual improvement projects because areas of disturbed soils would be highly susceptible to water erosion and downstream sedimentation. This impact is of particular concern where projects are located on previously contaminated sites. Without effective erosion and storm water control, contaminated soils exposed during construction activities may result in surface water contamination. In addition, grading and vegetation removal in proximity to creeks for construction, widening, and repair of bridges could result in an increase in erosion and sedimentation of creek banks. This could affect both water quality and the stability of slopes along the creeks. Regulations under the federal Clean Water Act require that a National Pollutant Discharge Elimination System (NPDES) storm water permit be obtained for projects that would disturb greater than an acre. Acquisition of the General Construction permit is dependent on the preparation of a Storm Water Pollution Prevention Plan (SWPPP) that contains specific actions, termed Best Management Practices (BMPs) to control the discharge of pollutants, including sediment, into the local surface water drainages. Many 2024 RTP/SCS projects, especially roadway extensions at the periphery of cities, would be subject to these regulations. Short- and long-term impacts to water quality would be reduced with implementation of Mitigation Measures W-1(a) through W-1(c) from the 2020 RTP/SCS SEIR.

Portions of Butte County lie in Federal Emergency Management Agency flood zones. Transportation projects associated with the 2024 RTP/SCS have the potential to expose people or structures to flooding and to impede or redirect flood flows. Implementation of proposed transportation improvements and future projects associated with the 2024 RTP/SCS could be subject to flooding hazards due to storm events and/or dam failure. Due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific impacts of individual transportation projects on flooding hazards is not possible at this time. However, the general nature of these hazards, and their potential impacts, are described below.

Proposed transportation improvements and future projects envisioned by the 2024 RTP/SCS in low-lying areas and in proximity to waterways and/or dam inundation zones may be subject to the hazard of flooding. According to the Butte County Local Hazard Mitigation Plan Update 2019, there are 35 dams located in the County, 16 of which are rated high hazard, 5 as significant hazard, and 4 as low hazard (Butte County 2019). Dam failure, overtopping, and inundation at any of these dams would potentially subject 2024 RTP/SCS projects to inundation. The effects of flooding could include temporary inundation of a facility that impedes its use or causes long-term damage to the facility. Flooding may also cause immediate damage to roadways and bridges, particularly during high-velocity flood events that wash away or erode facilities. This would typically occur adjacent to rising

rivers or streams. Any facility within the flood zone of a stream would be subject to impacts. Erosion caused by flooding can damage paved facilities, and bridge supports can be undermined or washed away. Flood hazards can also endanger occupants of habitable structures. Impacts related to flooding, redirecting flows, and inundation would be reduced with implementation of Mitigation Measures W-2(a) and W-2(b) from the 2020 RTP/SCS SEIR.

Butte County is located inland and is not located in a tsunami zone, and therefore is not at risk of release of pollutants due to inundation. No seiches have been recorded in the Plan Area. While the potential for seiches does exist, the likelihood is low and the majority of 2024 RTP/SCS projects would be improvements to existing roadways and would not introduce new facilities to the environment. Any new facilities would be required to address any on-site environmental issues. Impacts related to tsunami and seiche hazards would be less than significant.

Butte County contains three groundwater subbasins: the larger Sacramento Valley Groundwater Basin including the Butte, Vina, and Wyandotte Creek Subbasins. In September 2014, the California Legislature enacted comprehensive legislation aimed at strengthening local control and management of groundwater basins throughout the state. Known as the Sustainable Groundwater Management Act (SGMA), the legislation provides a framework for sustainable management of groundwater supplies by local authorities, with a limited role for state intervention when necessary to protect the resource. The Vina Subbasin is considered to have a high priority ranking by the Department of Water Resources (DWR), while the Butte and Wyandotte Creek Subbasins are ranked medium priority. All of these basins would therefore be subject to the SGMA and are required to submit a Groundwater Sustainability Plan (GSP). All three Subbasins have formed Groundwater Sustainability Agencies (GSAs). Vina and Wyandotte Creek Subbasins' GSPs were approved in July 2023. Butte Subbasin's GSP was submitted to the DWR in January 2022 and is still pending. 2024 RTP/SCS projects would be required to comply with GSPs, and the 2024 RTP/SCS would not conflict with or obstruct implementation of a sustainable groundwater management plan. Therefore, impacts would be less than significant.

Mitigation Measures

The following mitigation measures included in the 2020 RTP/SCS would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2020 RTP/SCS SEIR where relevant to land use projects implementing the 2024 RTP/SCS.

W-1(a) The sponsor agency of a 2024 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-1(b) The sponsor agency of a 2024 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-1(c) For a 2024 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.

W-2(a) If a 2024 RTP/SCS project is located in an area with high flooding potential due a storm event or dam inundation, the individual 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-2(b) For 2024 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.

Significance After Mitigation

Adherence to applicable NPDES storm water permits and SWPPPs, in addition to incorporation of Mitigation Measures W-1(a), W-1(b), and W-1(c) included in the 2016 RTP/SCS Initial Study would reduce impacts related to water quality to a less than significant level. Incorporation of Mitigation Measures W-2(a) and W-2(b) included in the 2016 RTP/SCS Initial Study and the 2020 RTP/SCS SEIR would reduce impacts related to flooding to a less than significant level.

4.11.6 Land Use and Planning

Appendix G of the *CEQA Guidelines* states that a significant impact on land use and planning may result if the project would:

- Physically divide an established community; or
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Projects under the 2024 RTP/SCS are designed to improve traffic and circulation throughout the Plan Area. However, the implementation of 2024 RTP/SCS projects could temporarily or permanently disrupt existing residences and business. During construction on both new and existing roadways, businesses may be temporarily disrupted through temporary road or land closures, or blockage of access to parking. Projects that involve extension of roadways may result in displacement of residents or businesses. While the majority of transportation projects would occur within the existing roadway rights-of-way, it is possible that future projects, particularly widening or expansion projects, could encroach onto private property or limit access. Access and disruption impacts associated with construction would occur to varying degrees with all construction projects but would be most acute in urban areas with high volumes of traffic and businesses that depend upon ease of vehicular access. Impacts related to dividing an established community would be reduced with implementation of Mitigation Measures LU-1(a) through LU-1(c) from the 2020 RTP/SCS SEIR.

State-level policies applicable to the 2024 RTP/SCS include MAP-21, Caltrans Smart Mobility 2010, and Senate Bill (SB) 375. The 2024 RTP/SCS contains goals that guide future transportation improvement projects and land use patterns within the region. The goals of the 2024 RTP/SCS are based on, and consistent with, both the planning factors stated in MAP-21, and the Caltrans Smart Mobility 2010 framework, tailored to the Butte County region. Additionally, the Butte County

General Plan and the general plans of the five incorporated cities in the County each provide for cooperation with BCAG as the Regional Transportation Planning Agency in their respective Circulation Elements. The 2024 RTP/SCS represents a voluntary strategy that retains local government land use autonomy. Neither SB 375 nor any other law requires local member agency general plans or land use regulation be consistent with the 2024 RTP/SCS. Full participation, therefore, is dependent on local government policy decisions and voluntary local government action.

The objective of the 2024 RTP/SCS is to provide for a comprehensive transportation system of facilities and services that meet the public's need for the movement of people and goods, and that is consistent with the social, economic, and environmental goals and policies of the region. Therefore, impacts regarding conflict with local plans, policies, and regulations, would be less than significant.

Mitigation Measures

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2016 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

LU-1(a) The individual project lead agency of 2024 RTP/SCS projects with the potential to displace residences or businesses should assure that project-specific environmental reviews consider alternative alignments and developments that avoid or minimize impacts to nearby residences and businesses.

LU-1(b) Where project-specific reviews identify displacement or relocation impacts that are unavoidable, the individual 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-1(c) For all 2024 RTP/SCS 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.

Significance After Mitigation

Implementation of mitigation measures LU-1(a-c) included in the 2016 RTP/SCS Initial Study would reduce impacts to less than significant.

4.11.7 Noise

The *CEQA Guidelines* Appendix G states that a significant impact on noise may result if the project would:

- For a project located within the vicinity of a private airstrip or 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.

There are three airports within Butte County (Paradise Airport, Chico Municipal Airport, and Ranchaero Airport). Some projects associated with the 2024 RTP/SCS may be located within an airport land use plan or within two miles of a public airport or public use airport. Any future transportation improvement project under the 2024 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. Therefore, impacts would be less than significant.

4.11.8 Mineral Resources

The *CEQA Guidelines* Appendix G states that a significant impact on public services may result if the project would:

- 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; or
- 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.

Mining activities in Butte County primarily focus on extracting sand, gravel, and gold, with the gravel belt serving as the main mining area. While sand and gravel extraction mainly occur in this belt, gravel is also found along the Sacramento River, although environmental constraints and a high water table have halted mining in this area. Gold extraction involves placer mining, suction dredge mining regulated by the Department of Fish and Wildlife, drift mining, and lode mining, with notable lode gold mines including the Blue Lead, Ohio Dix, and Carr mines (Butte County 2023). The Surface Mining and Reclamation Act of 1975 mandates the incorporation of mapped Mineral Resource Zones (MRZs) into General Plans, with Martin Marietta Materials Table Mountain Quarry and M&T Chico Ranch identified as significant mineral resources. Although these resources exist within the plan area, the 2024 RTP/SCS would not impact their use, as it does not alter land use designations or affect the availability of mineral resources, resulting in negligible impacts.

4.11.9 Public Services

The *CEQA Guidelines* Appendix G states that a significant impact on public services may result if the project would:

- Result in substantial adverse physical impacts associated with the need for or provision of new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other objectives for:
  - Fire protection;
  - Police protection;
  - Schools;
  - Parks; or
  - Other public facilities.

The transportation projects associated with the 2024 RTP/SCS would not generate demand for police or fire services, schools, parks, or other facilities. The 2024 RTP/SCS is designed to improve circulation and movement in the Plan Area and would facilitate police and fire movement throughout the County. The 2024 RTP/SCS would not induce new population growth beyond growth already anticipated by the General Plans of the County and five cities in Butte County and therefore would not increase the use of police, fire, schools, parks, or other public services. Planned transportation improvements would be expected to improve service response times. The impact of the 2024 RTP/SCS on public services would be less than significant.

4.11.10 Recreation

The *CEQA Guidelines* Appendix G states that a significant impact on recreation may result if the project would:

- 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; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

The 2024 RTP/SCS and its associated transportation projects would not generate demand for park land, as the projects would not generate population growth. Future infill and development projects may increase demand for parks; however, this demand would not exceed that which is already anticipated by the respective areas in which these projects would be located. Impacts to recreation would be less than significant.

4.11.11 Utilities and Service Systems

The *CEQA Guidelines* Appendix G states that a significant impact on utilities and service systems may result if the project would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- 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;
- Generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

The 2024 RTP/SCS consists of transportation improvements and modifications to enhance maneuverability throughout the Plan Area. These improvements would not exceed wastewater treatment requirements, require construction or expansion of wastewater treatment facilities, require a determination by the wastewater treatment provider, or conflict with regulations pertaining to solid waste. Construction activities may generate solid waste that would need to be disposed of at a local landfill. However, the waste generation would be temporary and reduced by

compliance with the California Green Building Code, which requires that construction operations recycle a minimum of 50 percent of waste generation. Future infill projects envisioned by the land use scenario in the 2024 RTP/SCS may need to connect to sewer services, increase demand for wastewater treatment, or require the upgrading of sewers. These would be addressed at the time of the projects by the local agency. These projects may also generate additional solid waste that would need disposed of at a local landfill. However, these additional demands would not exceed the anticipated demand from current growth anticipated in the General Plan of the County and each of the five cities within the County. The 2024 RTP/SCS would not result in increased growth above what is already anticipated. Therefore, impacts to public utilities would be less than significant.

Sixty-nine percent of Butte County's water supply is from surface water from the Sacramento River watershed and 31 percent is groundwater, with the majority of water usage, 71 percent, being used for agricultural purposes (Butte County 2023). Primary surface waterways include the Feather River and its several tributaries, as well as Butte Creek and Big Chico Creek. Reserves of groundwater are found in the Sacramento Valley and the mountains areas to the east and north.

Implementation of proposed transportation improvements and future projects facilitated by land use scenario envisioned in the 2024 RTP/SCS would result in both short-term and long-term impacts to the County's water supply. Due to the programmatic nature of the 2024 RTP/SCS, a precise, project-level analysis of the specific impacts of individual transportation projects on water supply is not possible at this time. However, the general nature of water supply impacts is described below.

During grading and general construction activities, water would be needed to suppress fugitive dust generated by construction equipment. Water used during construction could be drawn from waterways such as the Feather River, Butte Creek, or Big Chico Creek, supplies of which would potentially be in deficit during drought years. Because this could contribute further to any potential water supply deficit, the short-term water impact of the proposed plan is considered potentially significant.

The majority of transportation improvements involve modification of existing infrastructure. As such, a substantial increase in landscaped areas, and thereby increase in water demand, is not anticipated for these projects. Projects involving construction of new bike and pedestrian paths could include landscaping, which may require water supply. Irrigation of landscaping associated with these projects, and other projects in the 2024 RTP/SCS, would generate demand for water. In addition, future infill development projects or development along key corridors constructed in accordance with the 2024 RTP/SCS's preferred growth scenario would require water supply. The precise size and type of these projects is not known at this time; however, such development would require potable water. Impacts related to water demand would be reduced with implementation of Mitigation Measures UTI-(a), UTI-1(b), UTI-(c), and UTI-(e) from the 2016RTP/SCS EIR and the 2020 RTP/SCS SEIR.

Major 2024 RTP/SCS projects, such as road widenings and expansions, as well as new sidewalks, throughout the Plan Area could also affect groundwater supplies by incrementally reducing groundwater recharge potential. This reduction in groundwater recharge could occur because the impermeable surfaces associated with the proposed improvements would increase surface water runoff at the expense of natural infiltration. The magnitude of impacts associated with individual 2024 RTP/SCS projects cannot be accurately determined at this programmatic stage of analysis. Nevertheless, given the potential for water supply deficit of the County's hydrological resources during drought years, the reduction in groundwater recharge is considered to be potentially significant.

Mitigation Measures

The following mitigation measures included in the 2016 RTP/SCS and 2020 RTP/SCS SEIR would apply to the 2024 RTP/SCS.

BCAG shall and transportation project sponsor agencies can and should implement the following mitigation measures for applicable transportation projects. Butte County and cities in the County should implement these measures originally required by the 2016 RTP/SCS EIR where relevant to land use projects implementing the 2024 RTP/SCS.

UTI-1(a) The individual lead agency of a 2024 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.

UTI-1(b) The individual lead agency of a 2024 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.

UTI-1(c) The individual lead agency of a 2024 RTP/SCS project shall ensure that, if feasible, landscaping associated with proposed improvements is maintained using reclaimed water.

UTI-1(d) The individual lead agency of a 2024 RTP/SCS project shall ensure that porous pavement materials are utilized, where feasible, to allow for groundwater percolation.

UTI-1(e) The individual lead agency of a 2024 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.

Significance After Mitigation

Incorporation of mitigation measures UTI-1(a) through UTI-1(e) included in the 2016 RTP/SCS Initial Study and 2020 RTP/SCS SEIR would reduce impacts related to water supply to a less than significant level.

5 Other CEQA Required Discussions

This section analyzes the impacts of the 2024 RTP/SCS on growth inducing and long-term effects. A similar analysis was provided in the 2016 EIR prepared for the 2020 RTP/SCS; however, minor updates to transportation projects and land use development are included in the 2024 RTP/SCS, which requires an updated analysis.

5.1 Growth Inducement

Section 15126.2(d) of the *CEQA Guidelines* requires a discussion of a proposed project's potential to induce growth. Specifically, an EIR must discuss the ways in which the proposed project could foster economic or population growth. Included in this are projects which would remove obstacles to population growth. In addition, the EIR must discuss how the project may encourage and/or facilitate other activities that could significantly affect the environment. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. Economic and population growth do not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant environmental effects. A project's growth-inducing potential is therefore considered significant if growth generated by the project could result in significant effects in one or more environmental issue areas.

5.1.1 Economic Growth

As shown in Table 2-1 of Section 2, *Project Description*, there are 72-net new transportation improvement projects included in the 2024 RTP/SCS would generate additional employment opportunities for transportation construction, maintenance, and operation. However, similar to the 2016 RTP/SCS additional employment opportunities would be minimal and not subsequently increase the demand for support services and utilities, which could otherwise generate secondary employment opportunities. In addition, the 2024 RTP/SCS contains projects designed to further improve the efficient movement of goods and services for industries that are reliant upon the transportation network.

Although such growth may incrementally increase economic activity in Butte County, significant physical effects beyond those impacts discussed in this SEIR are not expected to result from economic growth generated by the 2024 RTP/SCS. Impacts associated with such growth are discussed in Sections 4.1 through 4.11 of this SEIR.

5.1.2 Employment, Household, and Population Growth

Regional population in Butte County is projected to grow from 201,608 in 2022 to 260,707 by 2045, an increase of approximately 29 percent. Employment within the region is projected to increase from 77,000 jobs to between 88,740 and 97,209 jobs over the same period, an increase of approximately 15 to 26 percent. As mentioned above, proposed projects under the 2024 RTP/SCS are designed and intended to accommodate projected growth up to the year 2045. Projects under the 2024 RTP/SCS would be phased to respond to growth as it occurs under adopted local general plans. As a result, the 2024 RTP/SCS would not directly induce growth beyond that projected by 2045; rather, it is intended to accommodate growth in a way that will help meet objectives

described in the SCS component of the 2024 RTP/SCS. Employment, population and household growth would occur within the Butte County region regardless of whether the 2024 RTP/SCS is implemented. The land use scenario envisioned by the 2024 RTP/SCS is effectively the same as the land use scenario envisioned by the 2016 RTP/SCS. This scenario would emphasize the development of infill within existing urbanized areas, and therefore, may redistribute growth patterns. The location of infill development would generally be on properties that have been identified as vacant or underutilized within applicable local jurisdictions. Infill development would not necessarily result in significant new population growth within these jurisdictions; rather the 2024 RTP/SCS would accommodate anticipated growth and concentrate it within existing urban cores instead of on the periphery of urban areas or within rural or semi-rural areas. Therefore, direct growth-inducing population growth impacts would be less than significant.

5.1.3 Removal of an Impediment to Growth

Similar to the 2016 RTP/SCS, the majority of 2024 RTP/SCS transportation improvements would take place in existing urbanized areas, such as the cities of Chico, Oroville, and the Town of Paradise. The remaining bulk of transportation improvements would occur throughout the unincorporated area and communities of Butte County. Such transportation improvements can be perceived as removing an obstacle to growth by either creating additional traffic capacity (in the case of roadway widening) or improving access to undeveloped areas (in the case of road extensions). New infrastructure may also serve to accelerate or shift planned growth or encourage and intensify unplanned growth. These transportation network improvements would remove obstacles to growth in some areas of the region, which would support additional housing, population and economic growth, and therefore could be considered growth inducing.

However, these improvements are primarily intended to support the transportation needs of the growing population while implementing the land use approach outlined in the SCS. The SCS, similar to the SCS adopted in 2020, is designed to accommodate growth by encouraging development in already urbanized areas and located near key transportation corridors rather than suburban and rural development on greenfields/undeveloped areas of the region. The 2024 RTP/SCS transportation improvement projects are intended and designed to support the land use patterns established in the SCS. Therefore, the 2024 RTP/SCS is consistent with projected and planned growth. Furthermore, all transportation improvement projects and land uses envisioned by the 2024 RTP/SCS are anticipated by the general plans of the applicable local jurisdictions, as all improvements have been coordinated with the applicable local jurisdictions.

5.2 Irreversible Environmental Effects

Section 15126.2(c) of the *CEQA Guidelines* requires a discussion of significant irreversible environmental changes that would occur as a result of a proposed project. As described in Section 2, *Project Description*, the 2024 RTP/SCS modifies the 2020 RTP/SCS by removing completed projects, modifying some projects that continue to be on the list based on new information, and adding approximately 72 net new minor projects to the list. In addition, the land use scenario envisioned by the 2024 RTP/SCS is similar to that contained in the 2016 RTP/SCS.

Construction of these new and modified projects would have an incremental increase in the use of non-renewable energy sources, potable water and building materials above what was analyzed in the 2016 EIR for the 2016 RTP/SCS. The use and consumption of non-renewable resources would be irreversible.

Long-term irreversible environmental changes are associated with increased asphalt or concrete paving from new and modified transportation projects and related direct and cumulative impacts to aesthetics, biological resources, geology and soils, and hydrology and water quality. These types of environmental changes were evaluated in the 2016 EIR, and the effects of the 2024 RTP/SCS would not be substantially different or more severe that previously identified in the 2016 EIR. Additionally, the mitigation measures prescribed to minimize these effects in the 2016 EIR would be applicable to the 2024 RTP/SCS.

5.3 List of Significant and Unavoidable Impacts

The proposed 2024 RTP/SCS would result in the significant and unavoidable impacts listed below. These impacts are in addition to those identified as significant and unavoidable in the 2016 EIR for the 2016 RTP/SCS.

- **Impact AG-1**. Conversion of Prime Farmland, Unique Farmland, Farmland of Statewide Importance and lands under Williamson Act contract to non-agricultural use
- **Impact CR-1**. Disturbance to historical resources
- **Impact T-2.** Achievement of vehicle miles travelled reductions set forth in the California Air Resources Board 2022 Scoping Plan
- **Impact WF-1.** Risk of loss, injury or death from wildland fire

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6 Alternatives

In accordance with Section 15126.6 of the *CEQA Guidelines*, this SEIR contains a comparative impact assessment of alternatives that would lessen significant impacts of the proposed 2024 RTP/SCS. Section 15126.6 of *CEQA Guidelines* states:

> an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible.

The primary purpose of this section of the SEIR is to provide decision makers and the general public a reasonable number of feasible alternatives that could attain most of the basic objectives of the 2024 RTP/SCS, while avoiding or reducing any of the significant adverse environmental effects of the 2024 RTP/SCS. As required by CEQA, this section also includes a discussion of the "environmentally superior alternative" among those studied.

The objectives for the proposed project are listed in Section 2.3 of *Section 2.0, Project Description*. Included in this analysis are three alternatives, including the CEQA-required "No Project" alternative, that involve changes to the project that may reduce the project-related environmental impacts as identified in this EIR. Alternatives have been developed to provide a reasonable range of options to consider that would help decision makers and the public understand the general implications of revising or eliminating certain components of the proposed project.

The following alternatives are evaluated in this EIR:

- Alternative 1: No Project Alternative
- Alternative 2: Financially Unconstrained Alternative
- Alternative 3: Transit Investment Plus (+) Alternative

6.1 Methodology

As described in Section 4, *Environmental Impact Analysis*, this SEIR analyzes the same potentially significant impact areas as the certified 2020 EIR prepared for the 2020 RTP/SCS. It also evaluates the 2024 RTP/SCS for potentially new significant impacts not previously identified in the 2020 EIR.

Each alternative is described and analyzed below to determine whether environmental impacts would be similar to, less than, or greater than those of the 2024 RTP/SCS for each of the impact issue areas analyzed in this SEIR with potentially significant impacts.

6.2 Alternative 1: No Project Alternative

6.2.1 Description

Section 15126.6 of the *CEQA Guidelines* requires analysis of the No Project Alternative. The No Project Alternative, Alternative 1, is defined as a land use pattern comprised of land use trends according to the 2020 RTP/SCS. It assumes that regional growth trends and land use according to the 2020 RTP/SCS would continue. Under Alternative 1 population in the Plan Area for 2040 would be 265,113, consistent with the findings of the 2020 RTP/SCS, which is approximately 1.7 percent higher than the 2024 RTP/SCS population projections for 2040. Transportation projects would be comprised of those that are currently in construction or are funded through the 2020 RTP/SCS updated to reflect current conditions. No new transportation improvement projects would be added to the RTP list and therefore would not occur.

6.2.2 Impact Analysis

a. Agriculture and Forestry

Implementation of Alternative 1 would result in less conversion of farmland to non-agricultural use as a result of fewer overall transportation improvement projects, including roadway extensions and widening, interchanges and bicycle and pedestrian projects that would occur. However, implementation of this alternative and continued land use patterns of the 2020 RTP/SCS would still result in agricultural land conversion as envisioned under the land use scenario in the 2024 RTP/SCS. Therefore, impacts to agricultural resources would be similar, although slightly reduced, and would remain significant and unavoidable. All related mitigation measures referenced in Section 4.1, *Agricultural Resources*, would apply to Alternative 1.

b. Air Quality

Implementation of Alternative would result in less construction related emissions due to fewer transportation improvement projects. Similar to the 2020 RTP/SCS, the overall land use scenario envisioned by the 2024 RTP/SCS is intended to increase residential and commercial land use capacity within existing transit corridors which would shift a greater share of future growth to these corridors, ultimately increasing density, improving circulation and multimodal connections. However, overall population growth under this alternative would be 1.7 percent higher than the 2024 RTP/SCS and would result in less transportation improvements, thereby increasing regional VMT compared to the 2024 RTP/SCS. Furthermore, as stated Section 4.2, *Air Quality*, emissions under the No Project alternative would be greater for all criteria pollutants than those produced with implementation of the 2024 RTP/SCS. Thus, even though construction air quality impacts would be reduced under this alternative, increased operational emissions would result in greater air quality emissions when compared to the 2024 RTP/SCS. Overall, air quality would be slightly increased under Alternative 1. All mitigation measures identified in Section 4.2, *Air Quality,* would still be required to reduce or avoid potentially significant impacts under Alternative 1.

c. Biological Resources

Implementation of Alternative 1 would result in less impacts to biological resources as fewer overall transportation projects, including roadway extensions, widening projects and creek crossings would occur. Fewer transportation improvement projects would result in less ground disturbance and

fewer impacts to special status plants and animals, critical habitats, and wildlife movement than anticipated if the 2024 RTP/SCS were implemented. However, development in Butte County under this alternative would continue to occur and result in potential impacts to biological resources, as the overall land use scenario envisioned by the 2024 RTP/SCS is similar to proposed in the 2020 RTP/SCS and would therefore have similar impacts to biological resources. While impacts to sensitive plant and animal species, critical habitats and wildlife movement may be reduced under Alternative 1 relative to the 2024 RTP/SCS, impacts would remain significant, but mitigable. All related mitigation measures referenced in Section 4.3, *Biological Resources*, would apply to Alternative 1.

d. Cultural Resources

Implementation of Alternative 1 would involve less ground disturbance than would occur under the 2024 RTP/SCS due to the reduced number of transportation improvement projects such as roadway extension and widening, interchanges and bicycle and pedestrian facilities. Therefore, the potential to impact known and unknown cultural resources would be reduced. However, some ground disturbance would still occur from completion of projects that are currently funded under the 2020 RTP/SCS and impacts related to unknown cultural resources would remain significant but mitigable. All related mitigation measures referenced in Section 4.4, *Paleontological, Cultural, and Tribal Cultural Resources*, would apply to Alternative 1. Because this alternative would include the same land use scenario as the 2024 RTP/SCS, potential impacts to historic structures would be similar and remain significant and unavoidable. Overall, impacts related to cultural resources would be similar or slightly reduced under this alternative as compared to the 2024 RTP/SCS.

e. Energy

Implementation of Alterative 1 would result in fewer energy impacts during construction activities as fewer transportation improvement projects would be constructed. However, the regional VMT would be greater under this alternative than the 2024 RTP/SCS which would result in greater energy demand. Overall, the No Project Alternative would result in more energy use than the 2024 RTP/SCS due to higher VMT, which would result in increased fuel consumption.

f. Greenhouse Gas Emissions

Implementation of Alternative 1 would result in fewer impacts associated with GHG emissions during construction activities as fewer transportation related projects would be constructed. Because of the increased regional growth and fewer transit-related improvement projects, regional VMT would be greater under this alternative than the 2024 RTP/SCS, and other performance measures also show an improvement with the 2024 RTP/SCS in the overall efficiency of the transportation network compared to this alternative. As long-term GHG emissions would increase under this alternative, the overall impact of Alternative 1 would be higher as compared to the 2024 RTP/SCS.

g. Noise

From a program perspective, fewer transportation projects would result in less construction activity and short-term noise impacts throughout Butte County. However, construction noise would still occur and impacts would remain significant and mitigable. All related construction noise mitigation measures specified in Section 4.7, *Noise*, would be required under Alternative 1.

Although the number of transportation projects would be reduced under this alternative as compared to the 2024 RTP/SCS, an increase in traffic volumes resulting from regional growth would occur. As Alternative 1 would result in more VMT, more transportation noise would occur under this alternative, resulting in greater noise impacts overall than what would occur under the 2024 RTP/SCS.

h. Population and Housing

Alternative 1 would continue existing land use patterns similar to those envisioned by the 2024 RTP/SCS and while overall population growth would be approximately 1.7 percent higher under this alternative than the 2024 RTP/SCS, the project does not include new housing developments and would not displace any housing. Therefore, population and housing impacts would be similar to the 2024 RTP/SCS.

i. Transportation

Alternative 1 would not include some of the projects envisioned under the 2024 RTP/SCS, including new roadway extension and widening projects, new intersection projects, new bikeway and pedestrian projects (active transportation), and new transit projects. Many of these projects are intended to reduce automobile trips, and in many cases would serve as mitigation measures to reduce potential impacts associated with planned long-term development. Under Alternative 1, fewer transit projects would be implemented which would result in greater impact to populations dependent on transit services. Furthermore, VMT within the region would increase as a result of regional population growth and fewer transit projects. Therefore, similar to the 2024 RTPS, impacts would remain significant and unavoidable and all mitigation measures proposed in Section 4.9, Transportation and Circulation, would continue to apply to Alternative 1. .

As discussed in Section 4.9,

j. Tribal Cultural Resources

Implementation of Alternative 1 would involve less ground disturbance than would occur under the 2024 RTP/SCS due to the reduced number of transportation improvement projects such as roadway extension and widening, interchanges and bicycle and pedestrian facilities. As such, the potential to disturb tribal cultural resources, including ancestral remains and sacred sites, would be reduced. However, some ground disturbance would still occur from completion of projects that are currently funded under the 2020 RTP/SCS and impacts related to unknown cultural resources would remain significant but mitigable. All related mitigation measures referenced in Section 4.4, *Paleontological, Cultural, and Tribal Cultural Resources*, would apply to Alternative 1. Overall, impacts related to cultural resources would be similar or slightly reduced under this alternative than what could occur as a result of 2024 RTP/SCS.

k. Wildfire

Implementation of Alternative 1 would result in fewer wildfire impacts during construction activities as fewer transportation related projects would be constructed. Alternative 1 would also result in fewer projects and would thus decrease the potential for people to be exposed to wildfire risks, as compared to the 2024 RTP/SCS. Overall, wildfire impacts would be slightly reduced under this alternative than what could occur as a result of the 2024 RTP/SCS. All related mitigation measures reference in Section 4.10, *Wildfire*, would apply to Alternative 1 and impacts would remain significant and unavoidable.

6.3 Alternative 2: Financially Unconstrained

6.3.1 Description

The Financially Unconstrained Alternative, Alternative 2, includes the SCS and all projects identified in the 2024 project list, including those classified as financially "unconstrained", without regard to whether or not they can be funded. Transportation benefits under Alternative 2 relative to the 2024 RTP/SCS would be greater because of the increased volume of both roadway improvement and transit projects.

6.3.2 Impact Analysis

a. Agriculture and Forestry

Implementation of Alternative 2 would result in more conversion of farmland to non-agricultural use as a result of more overall transportation improvement projects, including roadway extensions and widening, interchanges and bicycle and pedestrian projects that would occur as compared to the 2024 RTP/SCS. Therefore, impacts to agricultural resources would be greater under Alternative 2 than the 2024 RTP/SCS and would remain significant and unavoidable. All related mitigation measures referenced in Section 4.1, *Agricultural Resources*, would apply to Alternative 2.

b. Air Quality

Implementation of Alternative 2 would result in greater short-term construction related air quality due to additional transportation improvement projects as part of the 2024 RTP/SCS. Accordingly, air pollutant emissions (including diesel particulates from construction equipment) would be greater under this alternative when compared to the 2024 RTP/SCS. With implementation of additional transit improvement and active transportation projects under this alternative, VMT would increase relative to the 2024 RTP/SCS due to an increased number of highway widening projects. Therefore, short-term construction related emissions would be greater, and regional air emissions would be slightly greater than the 2024 RTP/SCS since the overall VMT for this alternative would be greater than the 2024 RTP/SCS. Impacts would remain less than significant with mitigation and all mitigation measures identified in Section 4.2 *Air Quality* would still apply to Alternative 2.

c. Biological Resources

Implementation of Alternative 2 would result in greater impacts to biological resources as more overall transportation projects, including roadway extensions, widening projects and creek crossings would occur under Alternative 2. Alternative 2 would result in more ground disturbance and greater impacts to special status plants and animals, critical habitats, and wildlife movement associated with transportation improvement projects than anticipated in the 2024 RTP/SCS. Impacts would remain significant but mitigable and all related mitigation measures presented in Section 4.3, *Biological Resources*, would apply to Alternative 2.

d. Cultural Resources

Implementation of Alternative 2 would involve more ground disturbance than would occur under the 2024 RTP/SCS due to the increased number of transportation improvement projects such as roadway extension and widening, interchanges and bicycle and pedestrian facilities. Therefore, the potential to impact known and unknown cultural resources would be increased as compared to the

2024 RTP/SCS. Although impacts related to known and unknown cultural resources would increase, they would remain significant but mitigable and all related mitigation measures referenced in Section 4.4, *Paleontological, Cultural, and Tribal Cultural Resources*, would apply to Alternative 2. Because this alternative would include more transportation projects than the proposed 2024 RTP/SCS, potential impacts to historic structures would also be increased and thus impacts related to historic resources would remain significant and unavoidable. Overall, impacts related to cultural resources would be greater under this alternative than what could occur as a result of 2024 RTP/SCS, but would remain less than significant.

e. Energy

Implementation of this alternative would result in greater energy impacts during construction activities as more transportation improvement projects would be constructed as part of Alternative 2. In addition, the regional VMT would be greater under this alternative due to increased roadway extensions and widening projects. As a result, this alternative would result in greater energy use compared with the 2024 RTP/SCS due to increased fuel consumption. However, impacts would remain less than significant.

f. Greenhouse Gas Emissions

Alternative 2 would result in greater impacts associated with GHG emissions during construction activities as compared to the 2024 RTP/SCS because more projects would be constructed under this alternative. In comparison to the 2024 RTP/SCS, VMT under the Alternative 2 would be greater than the 2024 RTP/SCS due to increased roadway extensions and widening projects. Alternative 2 would include projects that prioritize bicycle and pedestrian infrastructure, thereby slightly reducing VMT compared to the 2024 RTP/SCS. However, this reduction would not occur regionally and would not outweigh the VMT impacts of the proposed roadway extensions and widening projects. Therefore, impacts to VMT would be greater than the 2024 RTP/SCS. Similar to the 2024 RTP/SCS all mitigation measures included in Section 4.5, *Climate Change and Greenhouse Gas Emissions*, would be applicable under this alternative and impacts would remain less than significant with mitigation.

g. Noise

From a program perspective, more transportation projects under this alternative would result in increased construction activity. This would increase short-term noise impacts throughout Butte County. However, impacts would remain significant and mitigable with implementation of construction noise mitigation measures specified in Section 4.7, *Noise*.

The number of transportation projects would be increased under this alternative as compared to the 2024 RTP/SCS, and VMT would be increased. Higher VMT would result in increased traffic noise as compared to the 2024 RTP/SCS due to additional roadway extensions and widening projects. Overall, noise impacts would be greater than the 2024 RTP/SCS and remain less than significant with mitigation.

h. Population and Housing

Alternative 2 would continue existing land use patterns similar to those envisioned by the 2024 RTP/SCS. Overall population growth would be the same as the 2024 RTP/SCS, as the project does not include new housing developments, and Alternative 2 would have the same land use scenario as the 2024 RTP/SCS. Therefore, population and housing impacts for Alternative 2 would be the same as the 2024 RTP/SCS.

i. Transportation

This alternative would include more transportation projects than the 2024 RTP/SCS and would result in higher VMT than the 2024 RTP/SCS due to additional roadway extensions and widening projects. This alternative would result in enhanced mobility choices (increased transit availability and enhanced pedestrian and bicycling facilities) relative to the 2024 RTP/SCS, thereby slightly reducing VMT. However, this reduction would not occur regionally and would not outweigh the VMT impacts of the proposed roadway extensions and widening projects. This alternative would also further enhance goods movement as a result of the increase in transportation projects countywide. However, as compared to baseline (2022) conditions Alternative 2 would not significantly reduce total VMT per capita by 2045. Therefore, similar to the 2024 RTP/SCS, impacts would remain significant and unavoidable and all mitigation measures proposed in Section 4.9, *Transportation and Circulation*, would continue to apply to Alternative 2.

j. Tribal Cultural Resources

Implementation of Alternative 2 would involve more ground disturbance than would occur under the 2024 RTP/SCS due to the increased number of transportation improvement projects such as roadway extension and widening, interchanges and bicycle and pedestrian facilities. As such, the potential to disturb tribal cultural resources, including ancestral remains and sacred sites, would be increased under this alternative as compared to the proposed 2024 RTP/SCS. Impacts related to unknown tribal cultural resources would remain significant but mitigable and all related mitigation measures referenced in Section 4.4, *Paleontological, Cultural, and Tribal Cultural Resources*, would apply to Alternative 2. Overall, impacts related to tribal cultural resources would be greater under this alternative than what could occur as a result of 2024 RTP/SCS.

k. Wildfire

Implementation of Alternative 2 would result in more wildfire impacts during construction activities, as more transportation related projects would be constructed. All related mitigation measures reference in Section 4.10, *Wildfire*, would apply to Alternative 2. Operationally, more projects would result in increased wildfire impacts because the number of individuals exposed to wildfire risk would increase. Wildfire impacts would be slightly greater under this alternative and would be significant and unavoidable, similar to the 2024 RTP/SCS.

6.4 Alternative 3: Transit Investment Plus (+)

6.4.1 Description

The Transit Investment Plus (+) Alternative would focus investment into development of public transit systems and alternative transportation modes, emphasizing bus, pedestrian, and bicycle modes of transportation. Secondly, this alternative would invest in measures such as solar panels, a plug-in efficiency (PEV) vehicle fleet, and electric and hydrogen buses to further reduce project environmental effects through energy efficiency. Thirdly, this alternative would result in changes to price metrics such as fuel and transit pricing. Under this scenario all transportation improvement projects as proposed under the 2024 RTP/SCS would remain (as all of the projects are constrained or funded); however, in addition there would be an increased amount of public transit, alternative transportation, and energy efficient transportation projects implemented. An increased amount of

transit projects under this alternative would result in an increased amount of associated development of those facilities relative to the 2024 RTP/SCS but a reduction of VMT in the region.

6.4.2 Impact Analysis

a. Agriculture and Forestry

Implementation of Alternative 3 would result in a greater impact to agricultural resources as an increased amount of transit-oriented, energy efficiency, and unconstrained projects would be constructed relative to the 2024 RTP/SCS. Additional projects under Alternative 2 would result in greater potential conversion of prime farmland, unique farmland, and/or farmland of statewide significance to non-agricultural use and potential conflicts with Williamson Contract lands when compared to the 2024 RTP/SCS. Impacts to agricultural resources would be increased under this alternative relative to the 2024 RTP/SCS, and would remain significant and unavoidable. All related mitigation measures reference in Section 4.1, *Agricultural Resources*, would apply to Alternative 3.

b. Air Quality

Implementation of Alternative 3 may result in additional short-term construction-related air quality impacts as compared to the proposed 2024 RTP/SCS with the increase in transit related improvement projects in addition to the other funded transportation improvement projects. Increased investment in transit-oriented, energy efficiency, and unconstrained projects under this alternative relative to the 2024 RTP/SCS would promote an increased number of people to utilize public transit and alternative means of transportation. The implementation of energy efficient vehicles and technologies such as natural gas and electric transit buses, would further reduce emissions as compared to the transportation-oriented projects within the 2024 RTP/SCS.

This alternative would reduce VMT and vehicle emissions as compared to the 2024 RTP/SCS because Alternative 3 would include the same transportation projects but would invest in additional transit projects that would further reduce VMT as additional modes of transportation are available and would invest in cleaner energy vehicles and solar to continue to reduce emissions. Due to this reduction in VMT and implementation of clean energy vehicles, the overall potential air quality impacts would be less than the 2024 RTP/SCS. Overall toxic air emissions (diesel particulates) would be expected to be less under this alternative as would emissions of PM_{10}, ROG, and NO_X. Air quality impacts would be less under this alternative than compared to the 2024 RTP/SCS. However, all mitigation measures identified in Section 4.2 *Air Quality* would be required for Alternative 3 and impacts would be less than significant, similar to the 2024 RTP/SCS.

c. Biological Resources

Implementation of Alternative 3 would result in greater impact to biological resources as more ground disturbance would occur due to the increased number of transit, energy efficiency, and unconstrained projects in addition to those projects included in the 2024 RTP/SCS. This would result in greater impacts to special status plants and animals, critical habitats, and wildlife movement associated with transportation improvement projects than anticipated if the 2024 RTP/SCS were implemented. Impacts would remain significant, but mitigable and all related mitigation measures referenced in Section 4.3, *Biological Resources* would apply to Alternative 3.

d. Cultural Resources

Implementation of Alternative 3 would involve more ground disturbance than would occur under the 2024 RTP/SCS due to the increased number of transit, energy efficiency, and unconstrained projects. Therefore, the potential to impact unknown cultural resources would be increased. Impacts related to unknown cultural resources would remain significant but mitigable and all related mitigation measures referenced in Section 4.4, *Paleontological, Cultural, and Tribal Cultural Resources*, would apply. This alternative would include more transportation projects with the investment in additional projects than the proposed 2024 RTP/SCS, thus potential impacts to historic structures may be increased and impacts to historic resources would remain significant and unavoidable. Overall, impacts related to cultural resources would be greater under this alternative than what would occur as a result of the 2024 RTP/SCS.

e. Energy

Implementation of Alternative 3 would result in greater energy impacts during construction activities as more transit-oriented, energy-efficiency, and unconstrained transportation related projects would be constructed. However, this alternative would result in lower regional VMT due to increased transit ridership when compared to the 2024 RTP/SCS, as well as the increased energy efficiency as use of PEV, solar, and electric and natural gas buses would further reduce emissions associated with the proposed project. As a result, this alternative would result in less energy use compared with the 2024 RTP/SCS and impacts would remain less than significant.

f. Greenhouse Gas Emissions

Overall VMT and project related operational emissions under Alternative 3 would be anticipated to be less than the 2024 RTP/SCS due to the increased investment in transit-oriented, energy-efficiency, and unconstrained projects and clean energy vehicles. Increased transit-oriented projects, as compared to the 2024 RTP/SCS, would promote utilization of public transit and alternative means of transportation beyond that envisioned in the 2024 RTP/SCS. Thus, GHG emissions are anticipated to be lower than the 2024 RTP/SCS under this alternative.

Construction-related emissions of GHGs under this alternative would be slightly greater than the 2024 RTP/SCS because the increased amount of transit-oriented, energy-efficiency, and unconstrained projects that would be constructed. Overall, the reduction in VMT and implemented energy efficiency under this alternative would reduce impacts associated with GHG emissions; however, all mitigation measures included in Section 4.6, *Climate Change and Greenhouse Gas Emissions*, would remain applicable to Alternative 3. Impacts would be less than significant, similar to the 2024 RTP/SCS.

g. Noise

From a program perspective, more transit-oriented, energy-efficiency, and unconstrained projects under this alternative would result in increased construction activity. This would increase short-term noise impacts throughout Butte County. However, impacts would remain be significant and mitigable with implementation of construction noise mitigation measures specified in Section 4.7, *Noise*. Because overall VMT would be reduced under Alternative 3, the potential for increased traffic generated noise overall, while site specific, would be less than the 2024 RTP/SCS. Overall, noise impacts would be similar to or slightly less than the 2024 RTP/SCS.

h. Population and Housing

Alternative 3 would continue existing land use patterns similar to those envisioned by the 2024 RTP/SCS. Overall population growth would be the same as the 2024 RTP/SCS, as the project does not include new housing developments. Therefore, population and housing impacts for Alternative 3 would be the same as the 2024 RTP/SCS and less than significant.

i. Transportation

Alternative 3 would focus more investments on transit improvements relative to the 2024 RTP/SCS and would result in pricing that would result in changes to VMT (primarily reduction in VMT) in the Plan Area. However, the changes in pricing would result in decreased emissions and VMT because personal vehicle use is anticipated to decrease with increased fuel pricing as transit ridership increases. It is noted that the increases in transit improvements under this alternative would not result in a proportionate increase in ridership, particularly in the smaller communities and more rural areas of Butte County.

As a result, overall VMT would be slightly less than the 2024 RTP/SCS as higher population densities in urban areas would have access to various modes of transit that would be funded under this alternative. Under this alternative, transit facilities, pedestrian and bicycle facilities would be likely enhanced further than that proposed by the 2024 RTP/SCS. In addition, because all other constrained transportation projects would remain the same under this alternative, goods movements would also be enhanced as congestion on highways and rural roads would likely be reduced under this alternative as more investment in transit-oriented, energy-efficiency, and unconstrained would likely result in fewer vehicle trips countywide. Transportation and circulation impacts under this alternative would be less than expected for the 2024 RTP/SCS, however impacts would remain significant and unavoidable as this alternative would not meet SB 375 VMT reduction requirements of 14.3 percent.

j. Tribal Cultural Resources

Implementation of Alternative 3 would involve more ground disturbance than would occur under the 2024 RTP/SCS due to the increased number of projects. As such, the potential to disturb tribal cultural resources, including ancestral remains and sacred sites, would be increased under this alternative than the proposed 2024 RTP/SCS. Impacts related to unknown cultural resources would remain significant but mitigable and all related mitigation measures referenced in Section 4.4, *Paleontological, Cultural, and Tribal Cultural Resources*, would apply. Overall, impacts related to cultural resources would be greater under this alternative than what could occur as a result of 2024 RTP/SCS.

k. Wildfire

Implementation of Alternative 3 would result in more wildfire impact during construction activities, as more transportation related projects would be constructed. All related mitigation measures referenced in Section 4.10, *Wildfire*, would apply to Alternative 3. Operationally, more projects would result in increased wildfire impacts as more projects would expose additional individuals to risks from wildfire. Wildfire impacts would be slightly greater under this alternative than what could occur as a result of the 2024 RTP/SCS and would be significant and unavoidable, similar to the 2024 RTP/SCS.

6.5 Environmentally Superior Alternative

The No Project Alternative (Alternative 1) would not be considered environmentally superior overall. Although it would entail the fewest projects and therefore result in the fewest construction-related impacts and impacts associated with ground disturbance, many of the transportation improvements envisioned in the 2024 RTP/SCS would not occur. As a consequence, total VMT be greater with this alternative as compared to the 2024 RTP/SCS. In addition, air quality and greenhouse gas emissions impacts would be greater than the 2024 RTP/SCS because VMT would be greater under the No Project Alternative due to increased regional growth and fewer regional transit-related improvement projects. While some transportation benefits may occur by implementing programmed improvements, relative to the 2020 RTP/SCS (those that are the same as the ones on the 2020 RTP list), Alternative 1 would not perform as well as the 2024 RTP/SCS. Specifically, this alternative would result in higher VMT as a fewer percentage of trips by transit, bicycle or walking would occur in the region compared to the projections of the 2024 RTP/SCS.

Under Alternative 2, the Financially Unconstrained, land use patterns would encourage development consistent with the proposed 2024 RTP/SCS, but more transportation improvement projects would be constructed. Alternative 2 would not be considered environmentally superior to the 2024 RTP/SCS primarily because impacts to environmental resource areas such as, agricultural resources, critical habitats, and cultural resources would be higher due to the increased amount of transportation improvement projects. Additionally, air quality and greenhouse gas emissions would be greater than the proposed 2024 RTP/SCS.

Alternative 3, the Transit Investment Plus (+) Alternative, performs similar or better than the proposed 2024 RTP/SCS and is considered to be environmentally superior to the proposed project. This alternative would result in an increased potential for agricultural lands to be converted for other uses and the amount of habitat and cultural resources impacted. However, overall VMT would be expected to be less because of a greater use of active transportation modes (biking and pedestrian) and greater use of public transit and active transportation modes. Transportation impacts would remain significant and unavoidable under Alternative 3 because CARB requirements would not be met. Furthermore, the increased transit opportunities and demand for those services for Butte County residents would result in less GHG and transportation impacts than the 2024 RTP/SCS and would likely result in reduced VMT. Additionally, use of PEV, solar, and electric and natural gas buses would further reduce emissions associated with the proposed project. This alternative would result in similar noise impacts.

Based on the information presented in Table 6-1, the Transit Investment Plus (+) Alternative (Alternative 3) is determined to be the environmentally superior alternative when considering overall environmental impacts relative to the performance metrics and attainment of SB 375 requirements, even though impacts under Alternative 1 would involve less ground disturbing activities. However, superior performance of Alternative 3 with respect to certain metrics is largely attributable to individual behavior parameters that are beyond the control of BCAG. For example, under this alternative, traffic, air quality and GHG emission benefits from the expansion and improvement of public and active transportation facilities as well as through energy efficiency investments would rely upon individuals throughout Butte County utilizing these amenities. Therefore, implementation of this alternative and achievement of performance metrics such as lower VMT may not be feasible.

Table 6-1 Impact Comparison of Alternatives

Issue	Proposed Project Impact Classification	Alternative 1: No Project/ Alternative	Alternative 2: Financially Unconstrained	Alternative 3: Transit Investment Plus Energy Efficiency and Price Change
Agriculture and Forestry	Significant and Unavoidable	+	-	-
Air Quality	Less than Significant with Mitigation Incorporated	-	-	+
Biological Resources	Less than Significant with Mitigation Incorporated	+	-	-
Cultural Resources	Significant and Unavoidable	+	-	-
Energy	Less than Significant	-	-	+
Greenhouse Gas Emissions	Less than Significant with Mitigation Incorporated	-	-	+
Noise	Less than Significant with Mitigation Incorporated	+	-	+
Population and Housing	Less than Significant	-	=	=
Transportation and Circulation	Significant and Unavoidable	=	-	+
Tribal Cultural Resources	Less than Significant with Mitigation Incorporated	+	-	-
Wildfire	Significant and Unavoidable	+	-	-

+ Superior to the proposed project
- Inferior to the proposed project
= Substantially similar to the proposed project

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7.2 List of Preparers

This EIR was prepared by the Butte County Association of Governments, with the assistance of Rincon Consultants, Inc and Galloway Enterprises. Consultant staff involved in the preparation of the EIR are listed below.

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Appendix A

Notice of Preparation and Comment Letters

ROB BONTA
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State of California
DEPARTMENT OF JUSTICE

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November 28, 2023

Ivan Garcia, Programming Director
Butte County Association of Governments
326 Huss Drive, Suite 150
Chico, CA 95928

RE: Butte County 2024 RTP/SCS, SCH #2023110289

Dear Mr. Garcia:

Thank you for the opportunity to provide comments on the Notice of Preparation for the Butte County 2024 RTP/SCS project. While the logistics industry is an important component of our modern economy, warehouses can bring various environmental impacts to the communities where they are located. For example, diesel trucks visiting warehouses emit nitrogen oxide (NO_x)—a primary precursor to smog formation and a significant factor in the development of respiratory problems like asthma, bronchitis, and lung irritation—and diesel particulate matter (a subset of fine particular matter that is smaller than 2.5 micrometers)—a contributor to cancer, heart disease, respiratory illnesses, and premature death.[1] Trucks and on-site loading activities can also be loud, bringing disruptive noise levels during 24/7 operation that can cause hearing damage after prolonged exposure.[2] The hundreds, and sometimes thousands, of daily truck and passenger car trips that warehouses generate can contribute to traffic jams, deterioration of road surfaces, traffic accidents, and unsafe conditions for pedestrians and bicyclists. Depending on the circumstances of an individual project, warehouses may also have other environmental impacts.

To help lead agencies avoid, analyze, and mitigate warehouses' environmental impacts, the Attorney General Office's Bureau of Environmental Justice has published a document containing best practices and mitigation measures for warehouse projects. We have attached a

[1] California Air Resources Board, Nitrogen Dioxide & Health, https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health (NOx); California Air Resources Board, Summary: Diesel Particular Matter Health Impacts, https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts; Office of Environmental Health Hazard Assessment and American Lung Association of California, Health Effects of Diesel Exhaust, https://oehha.ca.gov/media/downloads/calenviroscreen/indicators/diesel4-02.pdf (DPM).

[2] Noise Sources and Their Effects, https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm (a diesel truck moving 40 miles per hour, 50 feet away, produces 84 decibels of sound).

copy of this document to this letter, and it is also available online.[3] We encourage you to consider the information in this document as you prepare the draft environmental impact report for this project.

Priority should be placed on avoiding land use conflicts between warehouses and sensitive receptors and on mitigating the impacts of any unavoidable land use conflicts. However, even projects located far from sensitive receptors may contribute to harmful regional air pollution, so you should consider measures to reduce emissions associated with the project to help the State meet its air quality goals. A distant warehouse may also impact sensitive receptors if trucks must pass near sensitive receptors to visit the warehouse.

The Bureau will continue to monitor proposed warehouse projects for compliance with the California Environmental Quality Act and other laws. We are available to discuss as you prepare the draft environmental impact report and consider how to guide warehouse development in your jurisdiction. Please do not hesitate to contact the Environmental Justice Bureau at ej@doj.ca.gov if you have any questions.

Sincerely,

CHRISTIE VOSBURG
Supervising Deputy Attorney General

For ROB BONTA
Attorney General

[3] https://oag.ca.gov/system/files/media/warehouse-best-practices.pdf.

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ROB BONTA
Attorney General

State of California
DEPARTMENT OF JUSTICE

Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act

Table of Contents

In carrying out its duty to enforce laws across California, the California Attorney General's Bureau of Environmental Justice (Bureau)[1] regularly reviews proposed warehouse projects for compliance with the California Environmental Quality Act (CEQA) and other laws. When necessary, the Bureau submits comment letters to lead agencies regarding warehouse projects, and in rare cases the Bureau has filed litigation to enforce CEQA.[2] This document builds upon the Bureau's work on warehouse projects, collecting information gained from the Bureau's review of hundreds of warehouse projects across the state.[3] It is meant to help lead agencies pursue CEQA compliance and promote environmentally-just development as they confront warehouse project proposals.[4] While CEQA analysis is necessarily project-specific, this document provides information on feasible best practices and mitigation measures, nearly all of which have been adapted from actual warehouse projects in California.

I. Background

In recent years, the proliferation of e-commerce and rising consumer expectations of rapid shipping have contributed to a boom in warehouse development.[5] California, with its ports, population centers, and transportation network, has found itself at the center of this trend. In 2020, the Ports of Los Angeles, Long Beach, and Oakland collectively accounted for over 34% of all United States international container trade.[6] The Ports of Los Angeles and Long Beach alone generate about 35,000 container truck trips every day.[7] Accordingly, the South Coast Air Basin now contains approximately 3,000 warehouses of over 100,000 square feet each, with a total warehouse capacity of approximately 700 million square feet, an increase of 20 percent over the last five years.[8] This trend has only accelerated, with e-commerce growing to

[1] https://oag.ca.gov/environment/justice.
[2] https://oag.ca.gov/environment/ceqa; *People of the State of California v. City of Fontana* (Super. Ct. San Bernardino County, No. CIVSB2121829); *South Central Neighbors United et al. v. City of Fresno et al.* (Super. Ct. Fresno County, No. 18CECG00690).
[3] This September 2022 version revises and replaces the prior March 2021 version of this document.
[4] Anyone reviewing this document to determine CEQA compliance responsibilities should consult their own attorney for legal advice.
[5] As used in this document, "warehouse" or "logistics facility" is defined as a facility consisting of one or more buildings that stores cargo, goods, or products on a short- or long-term basis for later distribution to businesses and/or retail customers.
[6] Data from the Bureau of Transportation Statistics, Container TEUs (Twenty-foot Equivalent Units) (2020), https://data.bts.gov/stories/s/Container-TEU/x3fb-aeda/ (Ports of Los Angeles, Long Beach, and Oakland combined for 14.157 million TEUs, 34% of 41.24 million TEUs total nationwide) (last accessed September 18, 2022).
[7] U.S. Dept. of Transportation, Federal Highway Administration, *FHWA Operations Support – Port Peak Pricing Program Evaluation* (2020), available at https://ops.fhwa.dot.gov/publications/fhwahop09014/sect2.htm (last accessed September 18, 2022).
[8] South Coast Air Qual. Mgmt. Dist., *Final Socioeconomic Assessment for Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305*, at 7-8, 41 (May 2021).

13% of all retail sales and 2021 being a second consecutive record year for new warehouse space leased.[9] The latest data and forecasts predict that the next wave of warehouse development will be in the Central Valley.[10]

When done properly, these activities can contribute to the economy and consumer welfare. However, imprudent warehouse development can harm local communities and the environment. Among other pollutants, diesel trucks visiting warehouses emit nitrogen oxide (NO_x)—a primary precursor to smog formation and a significant factor in the development of respiratory problems like asthma, bronchitis, and lung irritation—and diesel particulate matter (a subset of fine particular matter that is smaller than 2.5 micrometers)—a contributor to cancer, heart disease, respiratory illnesses, and premature death.[11] Trucks and on-site loading activities can also be loud, bringing disruptive noise levels during 24/7 operation that can cause hearing damage after prolonged exposure.[12] The hundreds, and sometimes thousands, of daily truck and passenger car trips that warehouses generate contribute to traffic jams, deterioration of road surfaces, and traffic accidents.

These environmental impacts also tend to be concentrated in neighborhoods already suffering from disproportionate health impacts and systemic vulnerability. For example, a comprehensive study by the South Coast Air Quality Management District found that communities located near large warehouses scored far higher on California's environmental justice screening tool, which measures overall pollution and demographic vulnerability.[13] That

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[9] U.S. Census Bureau News, Quarterly Retail E-Commerce Sales 4th Quarter 2021 (February 22, 2022), https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf (last accessed September 18, 2022); CBRE Research, *2022 North America Industrial Big Box Report: Review and Outlook*, at 2-3 (March 2022), *available at* https://www.cbre.com/insights/reports/2022-north-america-industrial-big-box#download-report (last accessed September 18, 2022).

[10] CBRE Research, *supra note* 9, at 4, 36; New York Times, *Warehouses Are Headed to the Central Valley, Too* (Jul. 22, 2020), *available* at https://www.nytimes.com/2020/07/22/us/coronavirus-ca-warehouse-workers.html.

[11] California Air Resources Board, Nitrogen Dioxide & Health, https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health (last accessed September 18, 2022) (NOx); California Air Resources Board, Summary: Diesel Particular Matter Health Impacts, https://ww2.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts (last accessed September 18, 2022); Office of Environmental Health Hazard Assessment and American Lung Association of California, Health Effects of Diesel Exhaust, https://oehha.ca.gov/media/downloads/calenviroscreen/indicators/diesel4-02.pdf (last accessed September 18, 2022) (DPM).

[12] Noise Sources and Their Effects, https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm (last accessed September 18, 2022) (a diesel truck moving 40 miles per hour, 50 feet away, produces 84 decibels of sound).

[13] South Coast Air Quality Management District, "Final Socioeconomic Assessment for Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305" (May 2021), at 4-5.

study concluded that, compared to the South Coast Air Basin averages, communities in the South Coast Air Basin near large warehouses had a substantially higher proportion of people of color; were exposed to more diesel particulate matter; had higher rates of asthma, cardiovascular disease, and low birth weights; and had higher poverty and unemployment rates.[14] Each area has its own unique history, but many of these impacts and vulnerabilities reflect historic redlining practices in these communities, which devalued land and concentrated poverty, racial outgroups, and pollution into designated areas.[15]

II. Proactive Planning: General Plans, Local Ordinances, and Good Neighbor Policies

To systematically guide warehouse development, we encourage local governing bodies to proactively plan for logistics projects in their jurisdictions. Proactive planning allows jurisdictions to prevent land use conflicts before they materialize and direct sustainable development. Benefits also include providing a predictable business environment, protecting residents from environmental harm, and setting consistent expectations jurisdiction-wide.

Proactive planning can take many forms. Land use designation and zoning decisions should channel development into appropriate areas. For example, establishing industrial districts near major highway and rail corridors but away from sensitive receptors[16] can help attract investment while avoiding conflicts between warehouse facilities and residential communities. Transition zones with lighter industrial and commercial land uses may also help minimize conflicts between residential and industrial uses.

In addition, general plan policies, local ordinances, and good neighbor policies should set minimum standards for logistics projects. General plan policies can be incorporated into existing economic development, land use, circulation, or other related general plan elements. Many jurisdictions alternatively choose to consolidate policies in a separate environmental justice element. Adopting general plan policies to guide warehouse development may also help

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[14] *Id*. at 5-7.

[15] Beginning in the 1930s, federal housing policy directed investment away from Black, immigrant, and working-class communities by color-coding neighborhoods according to the purported "riskiness" of loaning to their residents. In California cities where such "redlining" maps were drawn, nearly all of the communities where warehouses are now concentrated were formerly coded "red," signifying the least desirable areas where investment was to be avoided. *See* University of Richmond Digital Scholarship Lab, Mapping Inequality, https://dsl.richmond.edu/panorama/redlining/#loc=12/33.748/-118.272&city=los-angeles-ca (Los Angeles), https://dsl.richmond.edu/panorama/redlining/#loc=13/32.685/-117.132&city=san-diego-ca (San Diego), https://dsl.richmond.edu/panorama/redlining/#loc=11/37.81/-122.38&city=oakland-ca (Oakland), https://dsl.richmond.edu/panorama/redlining/#loc=13/37.956/-121.326&city=stockton-ca (Stockton), https://dsl.richmond.edu/panorama/redlining/#loc=12/36.751/-119.86&city=fresno-ca (Fresno) (all last accessed September 18, 2022).

[16] In this document, "sensitive receptors" refers to residences, schools, public recreation facilities, health care facilities, places of worship, daycare facilities, community centers, or incarceration facilities.

jurisdictions comply with their obligations under SB 1000, which requires local government general plans to identify objectives and policies to reduce health risks in disadvantaged communities, promote civil engagement in the public decision making process, and prioritize improvements and programs that address the needs of disadvantaged communities.[17]

Local ordinances and good neighbor policies that set development standards for all warehouses in the jurisdiction are a critical and increasingly common tool that serve several goals. When well-designed, these ordinances direct investment to local improvements, provide predictability for developers, conserve government resources by streamlining project review processes, and reduce the environmental impacts of industrial development. While many jurisdictions have adopted warehouse-specific development standards, an ordinance in the City of Fontana provides an example to review and build upon.[18] Good neighbor policies in Riverside County and by the Western Riverside Council of Government include additional measures worth consideration.[19]

The Bureau encourages jurisdictions to adopt their own local ordinances that combine the strongest policies from those models with measures discussed in the remainder of this document.

III. Community Engagement

Early and consistent community engagement is central to establishing good relationships between communities, lead agencies, and warehouse developers and tenants. Robust community engagement can give lead agencies access to community residents' on-the-ground knowledge and information about their concerns, build community support for projects, and develop creative solutions to ensure new logistics facilities are mutually beneficial. Examples of best practices for community engagement include:

- Holding a series of community meetings at times and locations convenient to members of the affected community and incorporating suggestions into the project design.
- Posting information in hard copy in public gathering spaces and on a website about the project. The information should include a complete, accurate project description, maps and drawings of the project design, and information about how the public can provide input and be involved in the project approval process. The

[17] For more information about SB 1000, *see* https://oag.ca.gov/environment/sb1000.
[18] https://oag.ca.gov/system/files/attachments/press-docs/Final%20Signed%20Fontana%20Ordinance.pdf (last accessed September 18, 2022).
[19] For example, the Riverside County policy requires community benefits agreements and supplemental funding contributions toward additional pollution offsets, and the Western Riverside Council of Governments policy sets a minimum buffer zone of 300 meters between warehouses and sensitive receptors. https://www.rivcocob.org/wp-content/uploads/2020/01/Good-Neighbor-Policy-F-3-Final-Adopted.pdf (last accessed September 18, 2022) (Riverside County); http://www.wrcog.cog.ca.us/DocumentCenter/View/318/Good-Neighbor-Guidelines-for-Siting-Warehouse-Distribution-Facilities-PDF?bidId= (last accessed September 18, 2022) (Western Riverside Council of Governments).

information should be in a format that is easy to navigate and understand for members of the affected community.

- Providing notice by mail to residents and schools within a certain radius of the project and along transportation corridors to be used by vehicles visiting the project, and by posting a prominent sign on the project site. The notice should include a brief project description and directions for accessing complete information about the project and for providing input on the project.
- Providing translation or interpretation in residents' native language, where appropriate.
- For public meetings broadcast online or otherwise held remotely, providing for access and public comment by telephone and supplying instructions for access and public comment with ample lead time prior to the meeting.
- Partnering with local community-based organizations to solicit feedback, leverage local networks, co-host meetings, and build support.
- Considering adoption of a community benefits agreement, negotiated with input from affected residents and businesses, by which the developer provides benefits to the affected community.
- Creating a community advisory board made up of local residents to review and provide feedback on project proposals in early planning stages.
- Identifying a person to act as a community liaison concerning on-site construction activity and operations, and providing contact information for the community liaison to the surrounding community.
- Requiring signage in public view at warehouse facilities with contact information for a local designated representative for the facility operator who can receive community complaints, and requiring any complaints to be answered by the facility operator within 48 hours of receipt.

IV. Warehouse Siting and Design Considerations

The most important consideration when planning a logistics facility is its location. Warehouses located in residential neighborhoods or near sensitive receptors expose community residents and those using or visiting sensitive receptor sites to the air pollution, noise, traffic, and other environmental impacts they generate. Therefore, placing facilities away from sensitive receptors significantly reduces their environmental and quality of life harms on local communities. The suggested best practices for siting and design of warehouse facilities does not relieve lead agencies' responsibility under CEQA to conduct a project-specific analysis of the project's impacts and evaluation of feasible mitigation measures and alternatives; lead agencies' incorporation of the best practices must be part of the impact, mitigation and alternatives analyses to meet the requirements of CEQA. Examples of best practices when siting and designing warehouse facilities include:

- Per California Air Resources Board (CARB) guidance, siting warehouse facilities so that their property lines are at least 1,000 feet from the property lines of the nearest sensitive receptors.[20]
- Providing adequate amounts of on-site parking to prevent trucks and other vehicles from parking or idling on public streets and to reduce demand for off-site truck yards.
- Establishing setbacks from the property line of the nearest sensitive receptor to warehouse dock doors, loading areas, and truck drive aisles, and locating warehouse dock doors, loading areas, and truck drive aisles on the opposite side of the building from the nearest sensitive receptors—e.g., placing dock doors on the north side of the facility if sensitive receptors are near the south side of the facility.
- Placing facility entry and exit points from the public street away from sensitive receptors—e.g., placing these points on the north side of the facility if sensitive receptors are adjacent to the south side of the facility.
- Ensuring heavy duty trucks abide by the on-site circulation plans by constructing physical barriers to block those trucks from using areas of the project site restricted to light duty vehicles or emergency vehicles only.
- Preventing truck queuing spillover onto surrounding streets by positioning entry gates after a minimum of 140 feet of space for queuing, and increasing the distance by 70 feet for every 20 loading docks beyond 50 docks.
- Locating facility entry and exit points on streets of higher commercial classification that are designed to accommodate heavy duty truck usage.
- Screening the warehouse site perimeter and onsite areas with significant truck traffic (e.g., dock doors and drive aisles) by creating physical, structural, and/or vegetative buffers that prevent or substantially reduce pollutant and noise dispersion from the facility to sensitive receptors.
- Planting exclusively 36-inch box evergreen trees to ensure faster maturity and four-season foliage.
- Requiring all property owners and successors in interest to maintain onsite trees and vegetation for the duration of ownership, including replacing any dead or unhealthy trees and vegetation.
- Posting signs clearly showing the designated entry and exit points from the public street for trucks and service vehicles.
- Including signs and drive aisle pavement markings that clearly identify onsite circulation patterns to minimize unnecessary onsite vehicle travel.
- Posting signs indicating that all parking and maintenance of trucks must be conducted within designated on-site areas and not within the surrounding community or public streets.

[20] CARB, Air Quality and Land Use Handbook: A Community Health Perspective (April 2005), at ES-1. CARB staff has released draft updates to this siting and design guidance which suggests a greater distance may be warranted in some scenarios. CARB, Concept Paper for the Freight Handbook (December 2019), *available at* https://ww2.arb.ca.gov/sites/default/files/2020-03/2019.12.12%20-%20Concept%20Paper%20for%20the%20Freight%20Handbook_1.pdf (last accessed September 18, 2022).

V. Air Quality and Greenhouse Gas Emissions Analysis and Mitigation

Emissions of air pollutants and greenhouse gases are often among the most substantial environmental impacts from new warehouse facilities. CEQA compliance demands a proper accounting of the full air quality and greenhouse gas impacts of logistics facilities and adoption of all feasible mitigation of significant impacts. Although efforts by CARB and other authorities to regulate the heavy-duty truck and off-road diesel fleets have made excellent progress in reducing the air quality impacts of logistics facilities, the opportunity remains for local jurisdictions to further mitigate these impacts at the project level. Lead agencies and developers should also consider designing projects with their long-term viability in mind. Constructing the necessary infrastructure to prepare for the zero-emission future of goods movement not only reduces a facility's emissions and local impact now, but it can also save money as demand for zero-emission infrastructure grows. In planning new logistics facilities, the Bureau strongly encourages developers to consider the local, statewide, and global impacts of their projects' emissions.

Examples of best practices when studying air quality and greenhouse gas impacts include:

- Fully analyzing all reasonably foreseeable project impacts, including cumulative impacts. In general, new warehouse developments are not ministerial under CEQA because they involve public officials' personal judgment as to the wisdom or manner of carrying out the project, even when warehouses are permitted by a site's applicable zoning and/or general plan land use designation.[21]
- When analyzing cumulative impacts, thoroughly considering the project's incremental impact in combination with past, present, and reasonably foreseeable future projects, even if the project's individual impacts alone do not exceed the applicable significance thresholds.
- Preparing a quantitative air quality study in accordance with local air district guidelines.
- Preparing a quantitative health risk assessment in accordance with California Office of Environmental Health Hazard Assessment and local air district guidelines.
- Refraining from labeling compliance with CARB or air district regulations as a mitigation measure—compliance with applicable regulations is required regardless of CEQA.
- Disclosing air pollution from the entire expected length of truck trips. CEQA requires full public disclosure of a project's anticipated truck trips, which entails calculating truck trip length based on likely truck trip destinations, rather than the distance from the facility to the edge of the air basin, local jurisdiction, or other truncated endpoint. All air pollution associated with the project must be considered, regardless of where those impacts occur.

[21] CEQA Guidelines § 15369.

- Accounting for all reasonably foreseeable greenhouse gas emissions from the project, without discounting projected emissions based on participation in California's Cap-and-Trade Program.

Examples of measures to mitigate air quality and greenhouse gas impacts from construction are below. To ensure mitigation measures are enforceable and effective, they should be imposed as permit conditions on the project where applicable.

- Requiring off-road construction equipment to be hybrid electric-diesel or zero-emission, where available, and all diesel-fueled off-road construction equipment to be equipped with CARB Tier IV-compliant engines or better, and including this requirement in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply the compliant construction equipment for use prior to any ground-disturbing and construction activities.
- Prohibiting off-road diesel-powered equipment from being in the "on" position for more than 10 hours per day.
- Using electric-powered hand tools, forklifts, and pressure washers, and providing electrical hook ups to the power grid rather than use of diesel-fueled generators to supply their power.
- Designating an area in the construction site where electric-powered construction vehicles and equipment can charge.
- Limiting the amount of daily grading disturbance area.
- Prohibiting grading on days with an Air Quality Index forecast of greater than 100 for particulates or ozone for the project area.
- Forbidding idling of heavy equipment for more than three minutes.
- Keeping onsite and furnishing to the lead agency or other regulators upon request, all equipment maintenance records and data sheets, including design specifications and emission control tier classifications.
- Conducting an on-site inspection to verify compliance with construction mitigation and to identify other opportunities to further reduce construction impacts.
- Using paints, architectural coatings, and industrial maintenance coatings that have volatile organic compound levels of less than 10 g/L.
- Providing information on transit and ridesharing programs and services to construction employees.
- Providing meal options onsite or shuttles between the facility and nearby meal destinations for construction employees.

Examples of measures to mitigate air quality and greenhouse gas impacts from operation include:

- Requiring all heavy-duty vehicles engaged in drayage[22] to or from the project site to be zero-emission beginning in 2030.

[22] "Drayage" refers generally to transport of cargo to or from a seaport or intermodal railyard.

- Requiring all on-site motorized operational equipment, such as forklifts and yard trucks, to be zero-emission with the necessary charging or fueling stations provided.
- Requiring tenants to use zero-emission light- and medium-duty vehicles as part of business operations.
- Forbidding trucks from idling for more than three minutes and requiring operators to turn off engines when not in use.
- Posting both interior- and exterior-facing signs, including signs directed at all dock and delivery areas, identifying idling restrictions and contact information to report violations to CARB, the local air district, and the building manager.
- Installing solar photovoltaic systems on the project site of a specified electrical generation capacity that is equal to or greater than the building's projected energy needs, including all electrical chargers.
- Designing all project building roofs to accommodate the maximum future coverage of solar panels and installing the maximum solar power generation capacity feasible.
- Constructing zero-emission truck charging/fueling stations proportional to the number of dock doors at the project.
- Running conduit to designated locations for future electric truck charging stations.
- Unless the owner of the facility records a covenant on the title of the underlying property ensuring that the property cannot be used to provide refrigerated warehouse space, constructing electric plugs for electric transport refrigeration units at every dock door and requiring truck operators with transport refrigeration units to use the electric plugs when at loading docks.
- Oversizing electrical rooms by 25 percent or providing a secondary electrical room to accommodate future expansion of electric vehicle charging capability.
- Constructing and maintaining electric light-duty vehicle charging stations proportional to the number of employee parking spaces (for example, requiring at least 10% of all employee parking spaces to be equipped with electric vehicle charging stations of at least Level 2 charging performance)
- Running conduit to an additional proportion of employee parking spaces for a future increase in the number of electric light-duty charging stations.
- Installing and maintaining, at the manufacturer's recommended maintenance intervals, air filtration systems at sensitive receptors within a certain radius of facility for the life of the project.
- Installing and maintaining, at the manufacturer's recommended maintenance intervals, an air monitoring station proximate to sensitive receptors and the facility for the life of the project, and making the resulting data publicly available in real time. While air monitoring does not mitigate the air quality or greenhouse gas impacts of a facility, it nonetheless benefits the affected community by providing information that can be used to improve air quality or avoid exposure to unhealthy air.
- Requiring all stand-by emergency generators to be powered by a non-diesel fuel.
- Requiring facility operators to train managers and employees on efficient scheduling and load management to eliminate unnecessary queuing and idling of

trucks.

- Requiring operators to establish and promote a rideshare program that discourages single-occupancy vehicle trips and provides financial incentives for alternate modes of transportation, including carpooling, public transit, and biking.
- Meeting CalGreen Tier 2 green building standards, including all provisions related to designated parking for clean air vehicles, electric vehicle charging, and bicycle parking.
- Designing to LEED green building certification standards.
- Providing meal options onsite or shuttles between the facility and nearby meal destinations.
- Posting signs at every truck exit driveway providing directional information to the truck route.
- Improving and maintaining vegetation and tree canopy for residents in and around the project area.
- Requiring that every tenant train its staff in charge of keeping vehicle records in diesel technologies and compliance with CARB regulations, by attending CARB-approved courses. Also require facility operators to maintain records on-site demonstrating compliance and make records available for inspection by the local jurisdiction, air district, and state upon request.
- Requiring tenants to enroll in the United States Environmental Protection Agency's SmartWay program, and requiring tenants who own, operate, or hire trucking carriers with more than 100 trucks to use carriers that are SmartWay carriers.
- Providing tenants with information on incentive programs, such as the Carl Moyer Program and Voucher Incentive Program, to upgrade their fleets.

VI. Noise Impacts Analysis and Mitigation

The noise associated with logistics facilities can be among their most intrusive impacts to nearby sensitive receptors. Various sources, such as unloading activity, diesel truck movement, and rooftop air conditioning units, can contribute substantial noise pollution. These impacts are exacerbated by logistics facilities' typical 24-hour, seven-days-per-week operation. Construction noise is often even greater than operational noise, so if a project site is near sensitive receptors, developers and lead agencies should adopt measures to reduce the noise generated by both construction and operation activities.

Examples of best practices when studying noise impacts include:

- Preparing a noise impact analysis that considers all reasonably foreseeable project noise impacts, including to nearby sensitive receptors. All reasonably foreseeable project noise impacts encompasses noise from both construction and operations, including stationary, on-site, and off-site noise sources.
- Adopting a lower significance threshold for incremental noise increases when baseline noise already exceeds total noise significance thresholds, to account for the cumulative impact of additional noise and the fact that, as noise moves up the decibel scale, each decibel increase is a progressively greater increase in sound

pressure than the last. For example, 70 dBA is ten times more sound pressure than 60 dBA.

- Disclosing and considering the significance of short-term noise levels associated with all aspects of project operation (i.e. both on-site noise generation and off-site truck noise). Considering only average noise levels may mask noise impacts sensitive receptors would consider significant—for example, the repeated but short-lived passing of individual trucks or loading activities at night.

Examples of measures to mitigate noise impacts include:

- Constructing physical, structural, or vegetative noise barriers on and/or off the project site.
- Planning and enforcing truck routes that avoid passing sensitive receptors.
- Locating or parking all stationary construction equipment as far from sensitive receptors as possible, and directing emitted noise away from sensitive receptors.
- Verifying that construction equipment has properly operating and maintained mufflers.
- Requiring all combustion-powered construction equipment to be surrounded by a noise protection barrier
- Limiting operation hours to daytime hours on weekdays.
- Paving roads where truck traffic is anticipated with low noise asphalt.
- Orienting any public address systems onsite away from sensitive receptors and setting system volume at a level not readily audible past the property line.

VII. Traffic Impacts Analysis and Mitigation

Warehouse facilities inevitably bring truck and passenger car traffic. Truck traffic can present substantial safety issues. Collisions with heavy-duty trucks are especially dangerous for passenger cars, motorcycles, bicycles, and pedestrians. These concerns can be even greater if truck traffic passes through residential areas, school zones, or other places where pedestrians are common and extra caution is warranted.

Examples of measures to mitigate traffic impacts include:

- Designing, clearly marking, and enforcing truck routes that keep trucks out of residential neighborhoods and away from other sensitive receptors.
- Installing signs in residential areas noting that truck and employee parking is prohibited.
- Requiring preparation and approval of a truck routing plan describing the facility's hours of operation, types of items to be stored, and truck routing to and from the facility to designated truck routes that avoids passing sensitive receptors. The plan should include measures for preventing truck queuing, circling, stopping, and parking on public streets, such as signage, pavement markings, and queuing analysis and enforcement. The plan should hold facility operators responsible for violations of the truck routing plan, and a revised plan should be required from any new tenant that occupies the property before a business license

is issued. The approving agency should retain discretion to determine if changes to the plan are necessary, including any additional measures to alleviate truck routing and parking issues that may arise during the life of the facility.
- Constructing new or improved transit stops, sidewalks, bicycle lanes, and crosswalks, with special attention to ensuring safe routes to schools.
- Consulting with the local public transit agency and securing increased public transit service to the project area.
- Designating areas for employee pickup and drop-off.
- Implementing traffic control and safety measures, such as speed bumps, speed limits, or new traffic signs or signals.
- Placing facility entry and exit points on major streets that do not have adjacent sensitive receptors.
- Restricting the turns trucks can make entering and exiting the facility to route trucks away from sensitive receptors.
- Constructing roadway improvements to improve traffic flow.
- Preparing a construction traffic control plan prior to grading, detailing the locations of equipment staging areas, material stockpiles, proposed road closures, and hours of construction operations, and designing the plan to minimize impacts to roads frequented by passenger cars, pedestrians, bicyclists, and other non-truck traffic.

VIII. Other Significant Environmental Impacts Analysis and Mitigation

Warehouse projects may result in significant environmental impacts to other resources, such as to aesthetics, cultural resources, energy, geology, or hazardous materials. All significant adverse environmental impacts must be evaluated, disclosed and mitigated to the extent feasible under CEQA. Examples of best practices and mitigation measures to reduce environmental impacts that do not fall under any of the above categories include:

- Appointing a compliance officer who is responsible for implementing all mitigation measures, and providing contact information for the compliance officer to the lead agency, to be updated annually.
- Creating a fund to mitigate impacts on affected residents, schools, places of worship, and other community institutions by retrofitting their property. For example, retaining a contractor to retrofit/install HVAC and/or air filtration systems, doors, dual-paned windows, and sound- and vibration-deadening insulation and curtains.
- Sweeping surrounding streets on a daily basis during construction to remove any construction-related debris and dirt.
- Directing all lighting at the facility into the interior of the site.
- Using full cut-off light shields and/or anti-glare lighting.
- Requiring submission of a property maintenance program for agency review and approval providing for the regular maintenance of all building structures, landscaping, and paved surfaces.
- Using cool pavement to reduce heat island effects.

- Planting trees in parking areas to provide at least 35% shade cover of parking areas within fifteen years to reduce heat island impacts.
- Using light colored roofing materials with a solar reflective index of 78 or greater.
- Including on-site amenities, such as a truck operator lounge with restrooms, vending machines, and air conditioning, to reduce the need for truck operators to idle or travel offsite.
- Designing skylights to provide natural light to interior worker areas.
- Installing climate control and air filtration in the warehouse facility to promote worker well-being.

IX. Conclusion

California's world-class economy, ports, and transportation network position it at the center of the e-commerce and logistics industry boom. At the same time, California is a global leader in environmental protection and environmentally just development. The guidance in this document furthers these dual strengths, ensuring that all can access the benefits of economic development. The Bureau will continue to monitor proposed projects for compliance with CEQA and other laws. Lead agencies, developers, community advocates, and other interested parties should feel free to reach out to us as they consider how to guide warehouse development in their area.

Please do not hesitate to contact the Environmental Justice Bureau at ej@doj.ca.gov if you have any questions.

NATIVE AMERICAN HERITAGE COMMISSION

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November 16, 2023

Ivan Garcia
Butte County Association of Governments
326 Huss Drive Suite 150
Chico, CA 95928

Re: 2023110289, 2024 Regional Transportation Plan and Sustainable Communities Strategy Project, Butte County

Dear Mr. Garcia:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

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

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

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

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

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

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

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

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

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

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

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

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

cc: State Clearinghouse

Appendix B

Air Quality and Greenhouse Gas Emissions Modeling Results

Group	Area	GAI	Sub-Area	Cal. Year	Season	Title	Veh_Tech	C2011 Cat	Population	Total_VMT	cVMT	eVMT	Trips	OG_RUNE	OG_IDLE	OG_STRE
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	Other Buses	ther Buses	39.8	2,167.0	2,167.0	0	354.5	0.0004	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	LDA-Dsl	LDA - Dsl	343.7	10,151.2	10,151.2	0	1,480.2	0.0005		
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	LDT1-Dsl	LDT1 - Dsl	9.11	112.2	112.2	0	26.6	0.0000		
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	LDT2-Dsl	LDT2 - Dsl	80.4	3,012.1	3,012.1	0	375.7	0.0001		
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	LHD1-Dsl	LHD1 - Dsl	5,170.0	175,437.2	175,437.2	0	65,032.3	0.0561	0.0007	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	LHD2-Dsl	LHD2 - Dsl	1,350.6	50,055.8	50,055.8	0	16,988.9	0.0127	0.0002	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	MDV-Dsl	MDV - Dsl	515.0	19,787.5	19,787.5	0	2,413.8	0.0004		
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	MH-Dsl	MH - Dsl	268.9	2,346.5	2,346.5	0	26.9	0.0004		
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	tor Coach-	tor Coach -	5.58	797.6	797.6	0	128.1	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	PTO-Dsl	PTO-Dsl		3,106.4	3,106.4	0		0.0002		
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	SBUS-Dsl	SBUS - Dsl	130.9	2,804.1	2,804.1	0	1,895.6	0.0003	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	AIRP Class	CAIRP smal	0.7519	50.7	50.7	0	17.3	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	AIRP Class	CAIRP smal	1.01	69.5	69.5	0	23.3	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	AIRP Class	CAIRP smal	3.06	181.7	181.7	0	70.3	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	AIRP Class	CAIRP heav	5.44	1,139.9	1,139.9	0	125.1	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	Delivery C	hstate smal	40.3	1,397.5	1,397.5	0	574.5	0.0001	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	Delivery C	hstate smal	22.4	769.3	769.3	0	320.3	0.0001	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	Delivery C	hstate smal	89.3	3,058.7	3,058.7	0	1,273.7	0.0003	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	Delivery C	hstate heav	19.3	1,027.6	1,027.6	0	275.1	0.0001	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	e Other Cla	hstate smal	178.1	6,974.6	6,974.6	0	2,058.8	0.0012	0.0001	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	e Other Cla	hstate smal	346.5	15,507.9	15,507.9	0	4,006.0	0.0004	0.0001	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	e Other Cla	hstate smal	243.3	10,068.3	10,068.3	0	2,812.0	0.0013	0.0002	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	e Other Cla	hstate heav	157.3	7,008.1	7,008.1	0	1,818.5	0.0002	0.0001	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	e Tractor Cl	hstate smal	0.0000	0.0001	0.0001	0	0.0000	0	0	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	e Tractor Cl	hstate heav	54.4	3,253.0	3,253.0	0	629.0	0.0001	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	OOS Class 4	OOS small-	0.4996	33.4	33.4	0	11.5	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	OOS Class 5	OOS small-	0.6699	45.8	45.8	0	15.4	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	OOS Class 6	OOS small-	2.03	119.6	119.6	0	46.7	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	OOS Class 7	OOS heavy	3.43	869.4	869.4	0	78.9	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	ublic Class	6 Public-Ds	13.1	427.1	427.1	0	67.3	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	ublic Class	6 Public-Ds	26.1	975.6	975.6	0	133.9	0.0001	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	ublic Class	6 Public-Ds	16.6	564.8	564.8	0	85.2	0.0001	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	ublic Class	6 Public-Ds	87.0	3,868.2	3,868.2	0	446.6	0.0004	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	tility Class	6 Utility-Ds	17.8	725.8	725.8	0	228.0	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	tility Class	6 Utility-Ds	3.40	137.2	137.2	0	43.5	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	tility Class	6 Utility-Ds	3.88	190.8	190.8	0	49.7	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	AIRP Class	7 CAIRP-D	380.5	79,459.4	79,459.4	0	8,743.4	0.0022	0.0053	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	OOS Class	7 NNOOS-D	342.9	94,372.2	94,372.2	0	7,880.3	0.0020	0.0059	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	OOS Class	7 NOOS-Ds	143.0	34,314.4	34,314.4	0	3,287.3	0.0010	0.0025	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	er Port Clas	Other Port-	4.83	833.8	833.8	0	79.0	0.0001	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	OAK Class	7 POAK-Ds	16.5	1,634.9	1,634.9	0	270.4	0.0002	0.0001	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	OLA Class	7 POLA-Ds	0.0000	0.0001	0.0001	0	0.0000	0	0	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	ublic Class	7 Public-Ds	146.4	6,240.6	6,240.6	0	751.3	0.0011	0.0002	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	WCV Class	7 SWCV-D	55.0	3,562.9	3,562.9	0	252.9	0.0001	0.0001	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	ete/Transit	7 Single-Ds	7.46	515.1	515.1	0	70.3	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	e Dump Cla	7 Single-Ds	76.3	4,456.0	4,456.0	0	718.3	0.0001	0.0002	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	e Other Cla	7 Single-Ds	189.1	10,506.7	10,506.7	0	1,781.3	0.0002	0.0005	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	actor Class	7 Tractor-D	382.9	32,061.0	32,061.0	0	5,563.5	0.0013	0.0017	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	tility Class	7 Utility-Ds	12.2	573.1	573.1	0	155.5	0.0000	0.0000	
1	Sub-Areas	27	Butte (SV)	2022	Summer	SV)-2022-S	UBUS-Dsl	UBUS - Dsl	19.6	2,530.1	2,530.1	0	78.3	0.0002		

TOG_TOTEX	TOG_DIURN	TOG_HTSK	OG_RUNL	TOG_TOTAL	OG_RUNE	ROG_IDLE	OG_STRE	ROG_TOTE	OG_DIUR	ROG_HTSK	OG_RUNL	ROG_TOTAL	CO_RUNEX	CO_IDLEX	CO_STREX
0.0004				0.0004	0.0004	0.0000		0.0004				0.0004	0.0011	0.0001	
0.0005				0.0005	0.0004			0.0004				0.0004	0.0045		
0.0000				0.0000	0.0000			0.0000				0.0000	0.0002		
0.0001				0.0001	0.0001			0.0001				0.0001	0.0006		
0.0568				0.0568	0.0493	0.0006		0.0499				0.0499	0.1510	0.0052	
0.0129				0.0129	0.0112	0.0002		0.0113				0.0113	0.0307	0.0014	
0.0004				0.0004	0.0003			0.0003				0.0003	0.0049		
0.0004				0.0004	0.0004			0.0004				0.0004	0.0014		
0.0001				0.0001	0.0000	0.0000		0.0000				0.0000	0.0001	0.0003	
0.0002				0.0002	0.0002			0.0002				0.0002	0.0011		
0.0004				0.0004	0.0003	0.0000		0.0003				0.0003	0.0008	0.0005	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0001				0.0001	0.0001	0.0000		0.0001				0.0001	0.0003	0.0003	
0.0001				0.0001	0.0001	0.0000		0.0001				0.0001	0.0002	0.0002	
0.0004				0.0004	0.0003	0.0000		0.0003				0.0003	0.0009	0.0007	
0.0001				0.0001	0.0000	0.0000		0.0001				0.0001	0.0002	0.0001	
0.0013				0.0013	0.0011	0.0001		0.0012				0.0012	0.0029	0.0014	
0.0005				0.0005	0.0003	0.0001		0.0004				0.0004	0.0014	0.0027	
0.0015				0.0015	0.0012	0.0002		0.0013				0.0013	0.0034	0.0021	
0.0003				0.0003	0.0002	0.0001		0.0003				0.0003	0.0008	0.0013	
0				0	0	0		0				0	0	0	
0.0001				0.0001	0.0001	0.0000		0.0001				0.0001	0.0004	0.0004	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0001				0.0001	0.0000	0.0000		0.0000				0.0000	0.0001	0.0001	
0.0001				0.0001	0.0001	0.0000		0.0001				0.0001	0.0002	0.0002	
0.0001				0.0001	0.0001	0.0000		0.0001				0.0001	0.0001	0.0001	
0.0005				0.0005	0.0004	0.0000		0.0004				0.0004	0.0008	0.0006	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0001	0.0001	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0000	
0.0074				0.0074	0.0019	0.0046		0.0065				0.0065	0.0077	0.0615	
0.0079				0.0079	0.0018	0.0052		0.0069				0.0069	0.0071	0.0701	
0.0034				0.0034	0.0009	0.0022		0.0030				0.0030	0.0034	0.0287	
0.0001				0.0001	0.0001	0.0000		0.0001				0.0001	0.0002	0.0002	
0.0002				0.0002	0.0001	0.0001		0.0002				0.0002	0.0005	0.0008	
0				0	0	0		0				0	0	0	
0.0013				0.0013	0.0009	0.0002		0.0011				0.0011	0.0030	0.0014	
0.0002				0.0002	0.0001	0.0001		0.0001				0.0001	0.0002	0.0006	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0000	0.0002	
0.0003				0.0003	0.0001	0.0002		0.0003				0.0003	0.0006	0.0021	
0.0007				0.0007	0.0002	0.0004		0.0006				0.0006	0.0010	0.0053	
0.0031				0.0031	0.0012	0.0015		0.0027				0.0027	0.0047	0.0191	
0.0000				0.0000	0.0000	0.0000		0.0000				0.0000	0.0001	0.0001	
0.0002				0.0002	0.0002			0.0002				0.0002	0.0002		

Diesel Totals:	0.0897	0.2375	0.2078	0.0000

CO_TOTEX	NOx_RUNE	NOx_IDLE	NOx_STRE	NOx_TOTEX	CO2_RUNEX	CO2_IDLE	CO2_STRE	CO2_TOTE	M10_RUNE	M10_IDLE	M10_STRE	M10_TOTE	M10_PMT	M10_PMB	M10_TOTA	M2_5_RUN	M2_5_IDLE
0.0011	0.0052	0.0002	0.0005	0.0059	2.75	0.0284		2.78	0.0001	0.0000		0.0001	0.0000	0.0001	0.0003	0.0001	0.0000
0.0045	0.0037			0.0037	2.71			2.71	0.0003			0.0003	0.0001	0.0001	0.0004	0.0003	
0.0002	0.0002			0.0002	0.0524			0.0524	0.0000			0.0000	0.0000	0.0000	0.0000	0.0000	
0.0006	0.0004			0.0004	1.09			1.09	0.0000			0.0000	0.0000	0.0000	0.0001	0.0000	
0.1562	0.5481	0.0136		0.5617	122.3	0.7824		123.1	0.0112	0.0002		0.0113	0.0023	0.0151	0.0287	0.0107	0.0002
0.0321	0.0980	0.0034		0.1014	42.8	0.3236		43.1	0.0025	0.0000		0.0025	0.0007	0.0050	0.0082	0.0024	0.0000
0.0049	0.0018			0.0018	9.25			9.25	0.0002			0.0002	0.0002	0.0002	0.0005	0.0002	
0.0014	0.0137			0.0137	2.80			2.80	0.0004			0.0004	0.0000	0.0001	0.0005	0.0003	
0.0004	0.0018	0.0003	0.0003	0.0024	1.55	0.0653		1.61	0.0000	0.0000		0.0000	0.0000	0.0001	0.0001	0.0000	0.0000
0.0011	0.0101			0.0101	7.11			7.11	0.0000			0.0000			0.0000	0.0000	
0.0013	0.0208	0.0041	0.0007	0.0255	3.56	0.3327		3.89	0.0001	0.0000		0.0001	0.0000	0.0001	0.0003	0.0001	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0633	0.0005		0.0638	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0001	0.0867	0.0007		0.0874	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0001	0.0000	0.0000	0.0002	0.2240	0.0020		0.2260	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0001	0.0008	0.0000	0.0001	0.0009	1.32	0.0036		1.33	0.0000	0.0000		0.0000	0.0000	0.0001	0.0001	0.0000	0.0000
0.0006	0.0022	0.0005	0.0009	0.0036	1.82	0.0926		1.92	0.0000	0.0000		0.0000	0.0000	0.0001	0.0001	0.0000	0.0000
0.0004	0.0013	0.0003	0.0005	0.0021	0.9940	0.0517		1.05	0.0000	0.0000		0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
0.0016	0.0058	0.0012	0.0019	0.0089	3.99	0.2070		4.20	0.0001	0.0000		0.0001	0.0000	0.0002	0.0003	0.0001	0.0000
0.0003	0.0019	0.0002	0.0004	0.0026	1.32	0.0460		1.37	0.0000	0.0000		0.0000	0.0000	0.0001	0.0001	0.0000	0.0000
0.0043	0.0209	0.0040	0.0027	0.0276	8.80	0.4680		9.27	0.0005	0.0000		0.0005	0.0001	0.0003	0.0009	0.0004	0.0000
0.0042	0.0147	0.0045	0.0077	0.0269	19.4	0.8542		20.2	0.0001	0.0000		0.0001	0.0002	0.0008	0.0011	0.0001	0.0000
0.0055	0.0216	0.0042	0.0044	0.0302	12.6	0.6087		13.3	0.0006	0.0000		0.0006	0.0001	0.0005	0.0013	0.0006	0.0000
0.0021	0.0102	0.0021	0.0034	0.0157	8.49	0.4004		8.89	0.0001	0.0000		0.0001	0.0001	0.0003	0.0005	0.0001	0.0000
0	0.0000	0	0	0.0000	0.0000	0.0000		0.0000	0	0		0	0	0	0	0	0
0.0008	0.0050	0.0007	0.0012	0.0069	3.83	0.1402		3.97	0.0000	0.0000		0.0000	0.0000	0.0002	0.0002	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0417	0.0003		0.0420	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0570	0.0004		0.0575	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0001	0.0000	0.0000	0.0001	0.1474	0.0013		0.1487	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0006	0.0000	0.0000	0.0007	1.01	0.0023		1.01	0.0000	0.0000		0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
0.0002	0.0031	0.0008	0.0000	0.0039	0.5876	0.0546		0.6422	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0004	0.0029	0.0010	0.0002	0.0040	1.33	0.1026		1.43	0.0000	0.0000		0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
0.0003	0.0042	0.0007	0.0001	0.0050	0.7857	0.0616		0.8473	0.0000	0.0000		0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
0.0014	0.0232	0.0036	0.0004	0.0273	5.26	0.3234		5.59	0.0002	0.0000		0.0002	0.0001	0.0002	0.0004	0.0002	0.0000
0.0002	0.0006	0.0002	0.0003	0.0011	0.8947	0.0330		0.9278	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0001	0.0000	0.0001	0.0002	0.1697	0.0064		0.1760	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0001	0.0000	0.0001	0.0002	0.2350	0.0072		0.2421	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0692	0.1636	0.0518	0.0200	0.2354	136.8	10.5		147.3	0.0030	0.0000		0.0030	0.0032	0.0065	0.0127	0.0029	0.0000
0.0772	0.1683	0.0566	0.0191	0.2441	163.5	11.5		175.0	0.0033	0.0000		0.0033	0.0037	0.0077	0.0148	0.0032	0.0000
0.0321	0.0725	0.0242	0.0076	0.1042	59.1	4.89		64.0	0.0013	0.0000		0.0013	0.0014	0.0028	0.0055	0.0013	0.0000
0.0004	0.0027	0.0003	0.0001	0.0031	1.53	0.0495		1.58	0.0000	0.0000		0.0000	0.0000	0.0001	0.0001	0.0000	0.0000
0.0013	0.0059	0.0009	0.0005	0.0073	3.01	0.1674		3.17	0.0000	0.0000		0.0000	0.0001	0.0002	0.0003	0.0000	0.0000
0	0.0000	0	0	0.0000	0.0000	0.0000		0.0000	0	0		0	0	0	0	0	0
0.0044	0.0666	0.0059	0.0023	0.0749	13.0	0.5449		13.5	0.0004	0.0000		0.0004	0.0002	0.0008	0.0015	0.0004	0.0000
0.0008	0.0335	0.0026	0.0007	0.0368	15.7	0.2324		15.9	0.0001	0.0000		0.0001	0.0001	0.0008	0.0010	0.0001	0.0000
0.0003	0.0007	0.0002	0.0003	0.0011	0.9461	0.0369		0.9830	0.0000	0.0000		0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
0.0027	0.0088	0.0019	0.0021	0.0128	8.18	0.3962		8.58	0.0001	0.0000		0.0001	0.0002	0.0004	0.0007	0.0001	0.0000
0.0064	0.0153	0.0048	0.0061	0.0261	19.1	0.9326		20.0	0.0002	0.0000		0.0002	0.0004	0.0009	0.0015	0.0002	0.0000
0.0238	0.0762	0.0190	0.0206	0.1158	55.2	3.70		58.9	0.0009	0.0000		0.0009	0.0013	0.0028	0.0050	0.0008	0.0000
0.0002	0.0011	0.0001	0.0008	0.0019	1.10	0.0219		1.12	0.0000	0.0000		0.0000	0.0000	0.0001	0.0001	0.0000	0.0000
0.0002	0.0009			0.0009	3.51			3.51	0.0000			0.0000	0.0001	0.0003	0.0004	0.0000	
0.4453	1.4394	0.2142	0.1062	1.7598	750.2191	37.9488	0.0000	788.1679	0.0259	0.0004	0.0000	0.0263	0.0149	0.0473	0.0885	0.0248	0.0004

M2_5_STRI	PM2_5_TOTEX	M2_5_PMT	M2_5_PMB	PM2_5_TOTAL	SOx_RUNE	SOx_IDLE	SOx_STRE	SOx_TOTE	Fuel_GAS	Fuel_DSL	Fuel_NG
	0.0001	0.0000	0.0000	0.0002	0.0000	0.0000		0.0000		0.2501	
	0.0003	0.0000	0.0000	0.0003	0.0000			0.0000		0.2438	
	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000		0.0047	
	0.0000	0.0000	0.0000	0.0001	0.0000			0.0000		0.0978	
	0.0108	0.0006	0.0053	0.0167	0.0012	0.0000		0.0012		11.1	
	0.0024	0.0002	0.0018	0.0044	0.0004	0.0000		0.0004		3.88	
	0.0002	0.0000	0.0001	0.0003	0.0001			0.0001		0.8323	
	0.0003	0.0000	0.0000	0.0004	0.0000			0.0000		0.2517	
	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000		0.0000		0.1453	
	0.0000			0.0000	0.0001			0.0001		0.6395	
	0.0001	0.0000	0.0000	0.0002	0.0000	0.0000		0.0000		0.3503	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0057	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0079	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0203	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.1195	
	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000		0.0000		0.1724	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0941	
	0.0001	0.0000	0.0001	0.0002	0.0000	0.0000		0.0000		0.3780	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.1233	
	0.0005	0.0000	0.0001	0.0006	0.0001	0.0000		0.0001		0.8345	
	0.0001	0.0001	0.0003	0.0005	0.0002	0.0000		0.0002		1.82	
	0.0006	0.0000	0.0002	0.0008	0.0001	0.0000		0.0001		1.19	
	0.0001	0.0000	0.0001	0.0002	0.0001	0.0000		0.0001		0.7997	
	0	0	0	0	0	0		0		0.0000	
	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000		0.0000		0.3575	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0038	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0052	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0134	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0910	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0578	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.1288	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0763	
	0.0002	0.0000	0.0001	0.0003	0.0001	0.0000		0.0001		0.5027	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0835	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0158	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0218	
	0.0029	0.0008	0.0023	0.0059	0.0013	0.0001		0.0014		13.3	
	0.0032	0.0009	0.0027	0.0068	0.0016	0.0001		0.0017		15.7	
	0.0013	0.0003	0.0010	0.0026	0.0006	0.0000		0.0006		5.76	
	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000		0.0000		0.1426	
	0.0000	0.0000	0.0001	0.0001	0.0000	0.0000		0.0000		0.2857	
	0	0	0	0	0	0		0		0.0000	
	0.0004	0.0001	0.0003	0.0008	0.0001	0.0000		0.0001		1.22	
	0.0001	0.0000	0.0003	0.0004	0.0001	0.0000		0.0002		1.43	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.0885	
	0.0001	0.0000	0.0001	0.0003	0.0001	0.0000		0.0001		0.7721	
	0.0002	0.0001	0.0003	0.0006	0.0002	0.0000		0.0002		1.80	
	0.0008	0.0003	0.0010	0.0021	0.0005	0.0000		0.0006		5.31	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000		0.1007	
	0.0000	0.0000	0.0001	0.0001	0.0000			0.0000		0.3161	
0.0000	0.0252	0.0037	0.0166	0.0455	0.0072	0.0004	0.0000	0.0075	0.0000	70.9351	0.0000

Area	Sub-Area	Cal_Year	Season	Title	Veh_Tech	Total_VMT	ROG_TOTAL	NOx_TOTEX	PM10_TOTAL	PM2_5_TOTAL	NOx_AF102	Total_NOx_rev	PM2_5_AF102	Total_PM2_5_rev	PM10_AF102	Total_PM10_rev
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	All Vehicles	5,094,999.6	0.7576	1.24	0.1622	0.0625		1.01		0.0662		0.1598
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	All Other Buses-Dsl	2,325.9	0.0003	0.0047	0.0002	0.0001	0.888770692	0.004219695	0.870464084	0.000118267	0.934555707	0.000224063
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDA-Dsl	2,357.7	0.0000	0.0002	0.0001	0.0000	1	0.000211366	1	2.50486E-05	1	5.37231E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDA-Elec	281,941.9	0	0	0.0039	0.0011	1	0	1	0.001099067	1	0.003850563
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDA-Gas	2,097,663.3	0.2236	0.0082	0.0371	0.0123	1	0.098229088	1	0.012297374	1	0.037132848
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDA-Phe	99,419.4	0.0057	0.0015	0.0014	0.0004	1	0.00149694	1	0.000414077	1	0.00135591
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDT1-Dsl	1.19	0.0000	0.0000	0.0000	0.0000	1	4.21075E-08	1	1.1926E-08	1	2.70156E-08
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDT1-Elec	2,734.0	0	0	0.0000	0.0000	1	0	1	1.0648E-05	1	3.7313E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDT1-Gas	141,180.6	0.0437	0.0141	0.0028	0.0010	1	0.014105504	1	0.000973224	1	0.002805185
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDT1-Phe	1,993.1	0.0001	0.0000	0.0000	0.0000	1	2.74923E-05	1	8.04849E-06	1	2.69177E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDT2-Dsl	3,944.2	0.0001	0.0001	0.0001	0.0000	1	0.000134297	1	3.83938E-05	1	8.96402E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDT2-Elec	24,251.6	0	0	0.0003	0.0001	1	0	1	9.44911E-05	1	0.000331078
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDT2-Gas	1,076,689.7	0.1443	0.0711	0.0207	0.0069	1	0.071126668	1	0.006912416	1	0.020651493
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LDT2-Phe	24,168.5	0.0010	0.0004	0.0003	0.0001	1	0.000352164	1	9.90573E-05	1	0.000327964
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LHD1-Dsl	69,521.4	0.0135	0.1136	0.0100	0.0053	1	0.113555231	1	0.005330546	1	0.010041641
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LHD1-Elec	25,721.9	0	0	0.0013	0.0004	1	0	1	0.000443733	1	0.001332616
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LHD1-Gas	61,527.7	0.0271	0.0238	0.0059	0.0021	1	0.023849972	1	0.002088685	1	0.005943118
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LHD2-Dsl	26,249.6	0.0046	0.0329	0.0040	0.0020	1	0.032915303	1	0.003022559	1	0.004040354
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LHD2-Elec	6,234.0	0	0	0.0004	0.0001	1	0	1	0.000123178	1	0.000367644
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	LHD2-Gas	7,243.7	0.0024	0.0022	0.0008	0.0003	1	0.00217573	1	0.00027971	1	0.000800749
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	MCY-Gas	17,227.8	0.1311	0.0098	0.0004	0.0002	1	0.009848457	1	0.000157644	1	0.000366875
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	MDV-Dsl	9,401.4	0.0001	0.0003	0.0002	0.0001	1	0.00029096	1	8.56443E-05	1	0.000209596
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	MDV-Elec	22,340.0	0	0	0.0003	0.0001	1	0	1	8.70824E-05	1	0.000305094
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	MDV-Gas	641,294.7	0.1310	0.0573	0.0124	0.0042	1	0.057268195	1	0.004198932	1	0.012447967
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	MDV-Phe	15,320.7	0.0007	0.0002	0.0002	0.0001	1	0.000218479	1	6.30608E-05	1	0.000208204
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	MH-Dsl	1,412.8	0.0002	0.0052	0.0002	0.0002	1	0.006168964	1	0.000163354	1	0.000233986
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	MH-Gas	2,083.1	0.0016	0.0004	0.0001	0.0000	1	0.000424564	1	4.63485E-05	1	0.000135214
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	Motor Coach-Dsl	814.7	0.0000	0.0015	0.0001	0.0001	0.718049814	0.001076176	0.859550656	4.54996E-05	0.94818264	0.000100672
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	OBUS-Elec	375.3	0	0	0.0000	0.0000	1	0	1	4.52793E-06	1	1.43553E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	OBUS-Gas	1,184.0	0.0011	0.0010	0.0001	0.0000	1	0.000987422	1	2.66558E-05	1	7.70925E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	PTO-Dsl	2,738.9	0.0000	0.0077	0.0000	0.0000	0.757871311	0.005817706	0.823241794	9.94016E-06	0.823241794	1.03896E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	PTO-Elec	862.2	0	0	0	0	0.757871311	0	0.823241794	0	0.823241794	0
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	SBUS-Dsl	2,157.6	0.0001	0.0052	0.0002	0.0001	0.913934443	0.004793807	0.946727524	6.08703E-05	0.976207858	0.000152322
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	SBUS-Elec	645.1	0	0	0.0000	0.0000	0.913934443	0	0.946727524	7.18027E-06	0.976207858	2.33793E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	SBUS-Gas	807.5	0.0004	0.0003	0.0000	0.0000	0.913934443	0.000257195	0.946727524	1.56299E-05	0.976207858	4.67625E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 CAIRP Class 4-Dsl	38.9	0.0000	0.0000	0.0000	0.0000	0.75509558	1.12386E-05	0.981054365	9.89272E-07	0.992650121	2.56681E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 CAIRP Class 4-Elec	21.7	0	0	0.0000	0.0000	0.75509558	0	0.981054365	2.44295E-07	0.992650121	7.87685E-07
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 CAIRP Class 5-Dsl	53.8	0.0000	0.0000	0.0000	0.0000	0.755882743	1.63468E-05	0.981303326	1.36311E-06	0.992753301	3.54377E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 CAIRP Class 5-Elec	29.4	0	0	0.0000	0.0000	0.755882743	0	0.981303326	3.30542E-07	0.992753301	1.06562E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 CAIRP Class 6-Dsl	137.3	0.0000	0.0001	0.0000	0.0000	0.746475899	5.03156E-05	0.982845571	3.46789E-06	0.993382075	9.0326E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 CAIRP Class 6-Elec	80.0	0	0	0.0000	0.0000	0.746475899	0	0.982845571	9.02005E-07	0.993382075	2.90519E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 CAIRP Class 7-Dsl	1,123.1	0.0000	0.0003	0.0001	0.0000	0.753195914	0.00025398	0.976143692	2.84719E-05	0.990488751	7.39696E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 CAIRP Class 7-Elec	240.4	0	0	0.0000	0.0000	0.753195914	0	0.976143692	2.69117E-06	0.990488751	8.70187E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Delivery Class 4-Dsl	1,236.3	0.0000	0.0017	0.0001	0.0000	0.780347126	0.001337933	0.975747401	3.04748E-05	0.990751644	8.5038E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Delivery Class 4-Elec	435.1	0	0	0.0000	0.0000	0.780347126	0	0.975747401	5.29982E-06	0.990751644	1.70046E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Delivery Class 5-Dsl	685.5	0.0000	0.0010	0.0000	0.0000	0.760262452	0.000765713	0.983223351	1.7325BE-05	0.993739553	4.76078E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Delivery Class 5-Elec	234.7	0	0	0.0000	0.0000	0.760262452	0	0.983223351	2.87993E-06	0.993739553	9.19771E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Delivery Class 6-Dsl	2,702.8	0.0000	0.0038	0.0002	0.0001	0.768853819	0.002904489	0.981455781	6.77241E-05	0.993045355	0.00018709
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Delivery Class 6-Elec	855.6	0	0	0.0000	0.0000	0.768853819	0	0.981455781	1.17068E-05	0.993045355	3.74293E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Delivery Class 7-Dsl	1,046.2	0.0000	0.0019	0.0001	0.0000	0.832234067	0.001552986	0.974467408	2.5974BE-05	0.990284575	7.21593E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Delivery Class 7-Elec	182.9	0	0	0.0000	0.0000	0.832234067	0	0.974467408	2.2252E-06	0.990284575	7.14559E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Other Class 4-Dsl	6,038.5	0.0001	0.0068	0.0004	0.0002	0.785191168	0.005342452	0.972204215	0.000156816	0.989156771	0.000412458
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Other Class 4-Elec	2,303.5	0	0	0.0001	0.0000	0.785191168	0	0.972204215	2.6786TE-05	0.989156771	8.64791E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Other Class 5-Dsl	13,393.0	0.0002	0.0142	0.0009	0.0003	0.757130313	0.010761794	0.983294245	0.000321827	0.993709875	0.000887378
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Other Class 5-Elec	5,155.3	0	0	0.0002	0.0001	0.757130313	0	0.983294245	6.06345E-05	0.993709875	0.000194438
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Other Class 6-Dsl	8,736.8	0.0001	0.0096	0.0006	0.0002	0.769632787	0.007384201	0.977810326	0.000222278	0.991494921	0.000591901
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Other Class 6-Elec	3,305.4	0	0	0.0001	0.0000	0.769632787	0	0.977810326	3.86597E-05	0.991494921	0.000124388
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Other Class 7-Dsl	6,503.8	0.0001	0.0113	0.0004	0.0002	0.839605285	0.009448327	0.965992609	0.000167388	0.986642683	0.000442648
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Other Class 7-Elec	1,878.3	0	0	0.0001	0.0000	0.839605285	0	0.965992609	2.1703E-05	0.986642683	7.03382E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Tractor Class 6-Dsl	0.0000	0	0.0000	0	0	0.782371501	2.67668E-10	0.975553732	2.28523E-12	0.990566463	4.38816E-12
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Tractor Class 6-Elec	0.0000	0	0	0	0	0.782371501	0	0.975553732	1.29276E-13	0.990566463	4.1652E-13
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Tractor Class 7-Dsl	3,507.3	0.0001	0.0051	0.0002	0.0001	0.843980961	0.004312484	0.964353279	9.03758E-05	0.985852666	0.000238796
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Instate Tractor Class 7-Elec	383.4	0	0	0.0000	0.0000	0.843980961	0	0.964353279	4.42303E-06	0.985852666	1.43476E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 OOS Class 4-Dsl	39.9	0.0000	0.0000	0.0000	0.0000	0.795359778	1.7266E-05	0.975509744	1.03077E-06	0.98991664	2.64746E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 OOS Class 5-Dsl	54.7	0.0000	0.0000	0.0000	0.0000	0.786559776	2.14201E-05	0.979212815	1.38834E-06	0.991548778	3.60496E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 OOS Class 6-Dsl	143.0	0.0000	0.0001	0.0000	0.0000	0.782454433	7.27391E-05	0.97910091	3.64395E-06	0.991481248	9.43676E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 OOS Class 7-Dsl	1,039.9	0.0000	0.0003	0.0001	0.0000	0.771410385	0.000264764	0.976031677	2.63816E-05	0.990236241	6.84977E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Public Class 4-Dsl	358.8	0.0000	0.0011	0.0000	0.0000	0.942427514	0.001005708	0.951201128	1.13424E-05	0.978815074	2.69652E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Public Class 4-Elec	99.7	0	0	0.0000	0.0000	0.942427514	0	0.951201128	1.15801E-06	0.978815074	3.77341E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Public Class 5-Dsl	810.4	0.0000	0.0015	0.0001	0.0000	0.903440796	0.001322335	0.971979497	2.19642E-05	0.988650919	5.70406E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Public Class 5-Elec	236.7	0	0	0.0000	0.0000	0.903440796	0	0.971979497	2.81036E-06	0.988650919	9.05192E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Public Class 6-Dsl	476.1	0.0000	0.0010	0.0000	0.0000	0.927745076	0.00090417	0.959925574	1.3033E-05	0.983104763	3.36322E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Public Class 6-Elec	130.1	0	0	0.0000	0.0000	0.927745076	0	0.959925574	1.52514E-06	0.983104763	4.9461E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Public Class 7-Dsl	3,212.8	0.0001	0.0059	0.0002	0.0001	0.924241291	0.005425238	0.963236814	8.87565E-05	0.984690787	0.000227856
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Public Class 7-Elec	939.0	0	0	0.0000	0.0000	0.924241291	0	0.963236814	1.1046E-05	0.984690787	3.57573E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Utility Class 5-Dsl	493.6	0.0000	0.0003	0.0000	0.0000	0.802285541	0.000275786	0.996137936	1.15284E-05	0.998597124	3.25725E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Utility Class 5-Elec	285.4	0	0	0.0000	0.0000	0.802285541	0	0.996137936	3.4352E-06	0.998597124	1.09162E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Utility Class 6-Dsl	93.3	0.0000	0.0001	0.0000	0.0000	0.80383309	5.15931E-05	0.996224085	2.17667E-06	0.998629862	6.156E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Utility Class 6-Elec	53.9	0	0	0.0000	0.0000	0.80383309	0	0.996224085	6.48508E-07	0.998629862	2.06068E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Utility Class 7-Dsl	124.2	0.0000	0.0001	0.0000	0.0000	0.806767081	0.036554E-05	0.996546802	2.8929RE-06	0.998750965	8.18598E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6 Utility Class 7-Elec	80.7	0	0	0.0000	0.0000	0.806767081	0	0.996546802	9.71355E-07	0.998750965	3.08592E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6TS-Elec	2,013.4	0	0	0.0001	0.0000	1	0	1	2.4339BE-05	1	7.71518E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T6TS-Gas	5,370.7	0.0017	0.0016	0.0004	0.0001	1	0.001584751	1	0.000120879	1	0.000350116
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 CAIRP Class 8-Dsl	83,690.7	0.0062	0.1645	0.0136	0.0062	0.667583116	0.109798378	0.894599367	0.005528687	0.951280618	0.012959353
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 CAIRP Class 8-Elec	17,584.7	0	0	0.0015	0.0005	0.667583116	0	0.894599367	0.000404396	0.951280618	0.001418288
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 NNOOS Class 8-Dsl	120,282.6	0.0080	0.2646	0.0195	0.0088	0.692516352	0.1832552	0.897966749	0.00785786	0.951684432	0.018538646
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 NOOS Class 8-Dsl	43,735.6	0.0034	0.1046	0.0072	0.0033	0.685486956	0.071682313	0.888916561	0.002895974	0.946654919	0.006771709
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Other Port Class 8-Dsl	1,083.9	0.0000	0.0017	0.0002	0.0001	0.685180124	0.001158015	0.949558474	6.48788E-05	0.979575117	0.000169386
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Other Port Class 8-Elec	197.4	0	0	0.0000	0.0000	0.685180124	0	0.949558474	5.25942E-06	0.979575117	1.76944E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 POAK Class 8-Dsl	1,778.8	0.0001	0.0035	0.0003	0.0001	0.676918855	0.002392579	0.941837806	0.000106996	0.976061036	0.00027718
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 POAK Class 8-Elec	226.6	0	0	0.0000	0.0000	0.676918855	0	0.941837806	5.9841E-06	0.976061036	2.02269E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 POLA Class 8-Dsl	0.0001	0	0.0000	0	0	0.693105932	1.69355E-10	0.901660461	7.19039E-12	0.954730047	1.85039E-11
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 POLA Class 8-Elec	0.0000	0	0	0	0	0.693105932	0	0.901660461	2.30295E-13	0.954730047	7.95351E-13
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 PUC Class 8-Dsl	5,215.6	0.0005	0.0274	0.0009	0.0004	0.915422867	0.025101457	0.955561862	0.000351296	0.982140659	0.000912643
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 PUBC Class 8-Elec	1,482.6	0	0	0.0001	0.0000	0.915422867	0	0.955561862	4.36828E-05	0.982140659	0.00014479
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 SWCV Class 8-Dsl	2,769.9	0.0001	0.0119	0.0008	0.0003	0.981244448	0.01170816	0.990272784	0.000298621	0.995738546	0.000799588
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 SWCV Class 8-Elec	885.2	0	0	0.0001	0.0000	0.981244448	0	0.990272784	4.42085E-05	0.995738546	0.000137001
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 SWCV Class 8-NG	1,460.0	0.0000	0.0007	0.0004	0.0001	0.981244448	0.000714015	0.990272784	0.00013306	0.995738546	0.000395949
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Concrete/Transit Mix Class 8-Dsl	334.6	0.0000	0.0005	0.0001	0.0000	0.737156052	0.000393958	0.97692427	1.92166E-05	0.99109397	5.01922E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Concrete/Transit Mix Class 8-Elec	189.9	0	0	0.0000	0.0000	0.737156052	0	0.97692427	5.01328E-06	0.99109397	1.66654E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Concrete/Transit Mix Class 8-NG	2.29	0.0000	0.0000	0.0000	0.0000	0.737156052	6.62828E-07	0.97692427	1.0395E-07	0.99109397	3.15077E-07
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Dump Class 8-Dsl	3,516.6	0.0002	0.0084	0.0005	0.0002	0.776004055	0.006514375	0.950176849	0.00020901	0.979611615	0.000531145
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Dump Class 8-Elec	1,034.8	0	0	0.0001	0.0000	0.776004055	0	0.950176849	2.65887E-05	0.979611615	8.98141E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Dump Class 8-NG	28.6	0.0000	0.0000	0.0000	0.0000	0.776004055	1.57692E-05	0.950176849	1.2210BE-06	0.979611615	3.78366E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Other Class 8-Dsl	9,839.0	0.0007	0.0242	0.0015	0.0006	0.751947262	0.018195387	0.954982937	0.000563801	0.981715081	0.001464126
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Other Class 8-Elec	3,621.1	0	0	0.0003	0.0001	0.751947262	0	0.954982937	9.33772E-05	0.981715081	0.000314565
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Single Other Class 8-NG	72.5	0.0000	0.0000	0.0000	0.0000	0.751947262	3.46199E-05	0.954982937	3.18803E-06	0.981715081	9.74988E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Tractor Class 8-Dsl	36,761.4	0.0028	0.1038	0.0057	0.0024	0.693107775	0.071934952	0.920969795	0.002235373	0.965271765	0.00554272
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Tractor Class 8-Elec	4,155.7	0	0	0.0004	0.0001	0.693107775	0	0.920969795	0.000101776	0.965271765	0.000350258
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Tractor Class 8-NG	105.9	0.0000	0.0001	0.0000	0.0000	0.693107775	4.39263E-05	0.920969795	4.41177E-06	0.965271765	1.37715E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Utility Class 8-Dsl	475.3	0.0000	0.0014	0.0001	0.0000	0.803298706	0.001099945	0.987987386	2.61013E-05	0.99557909	7.3873E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7 Utility Class 8-Elec	139.8	0	0	0.0000	0.0000	0.803298706	0	0.987987386	4.13457E-06	0.99557909	1.34823E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7IS-Elec	5.88	0	0	0.0000	0.0000	1	0	1	1.46305E-07	1	4.55074E-07
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	T7IS-Gas	15.3	0.0000	0.0000	0.0000	0.0000	1	3.77115E-05	1	6.80501E-07	1	2.00539E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	UBUS-Dsl	355.4	0.0000	0.0001	0.0000	0.0000	1	0.000141073	1	2.07036E-05	1	5.79983E-05
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	UBUS-Elec	2,771.1	0	0	0.0002	0.0001	1	0	1	7.62016E-05	1	0.000237605
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	UBUS-Gas	69.1	0.0000	0.0000	0.0000	0.0000	1	3.15994E-05	1	3.27278E-06	1	9.41562E-06
Sub-Areas	Butte (SV)	2035	Summer	SV1-2035-S	UBUS-NG	710.8	0.0000	0.0000	0.0001	0.0000	1	4.3798E-05	1	3.6492E-05	1	0.000103861

Group	Area	GAI	Sub-Area	Cal. Year	Season	Title	Veh_Tech	Population	Total_VMT	ROG_TOTAL	NOx_TOTE	M10_TOTA	M2_5_TOT	Column1	NOx_AF10	Total _NOx_rev
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	Other Buses	53.6	2,384.4	0.0002	0.0034	0.0002	0.0001		0.843889	0.002901236
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	LDA-Dsl	46.1	1,374.1	0.0000	0.0000	0.0000	0.0000		1	4.9833E-05
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	LDT1-Dsl	0.0393	1.41	0.0000	0.0000	0.0000	0.0000		1	3.99409E-08
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	LDT2-Dsl	117.4	4,163.5	0.0001	0.0001	0.0001	0.0000		1	0.000122109
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	LHD1-Dsl	1,152.6	33,612.7	0.0043	0.0219	0.0043	0.0021		1	0.021927659
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	LHD2-Dsl	536.9	15,418.6	0.0024	0.0124	0.0023	0.0011		1	0.012431879
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	MDV-Dsl	225.3	7,117.1	0.0000	0.0001	0.0001	0.0000		1	9.95649E-05
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	MH-Dsl	120.8	1,028.9	0.0001	0.0031	0.0001	0.0001		1	0.00307282
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	otor Coach-I	6.38	809.9	0.0000	0.0011	0.0001	0.0000		0.681149	0.000745079
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	PTO-Dsl		1,978.0	0.0000	0.0053	0.0000	0.0000		0.727785	0.003823926
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	SBUS-Dsl	74.6	1,529.6	0.0000	0.0018	0.0001	0.0000		0.762002	0.001402828
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	AIRP Class	0.4009	27.8	0.0000	0.0000	0.0000	0.0000		0.74931	7.07645E-06
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	AIRP Class	0.4932	38.3	0.0000	0.0000	0.0000	0.0000		0.750211	9.32412E-06
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	AIRP Class	2.23	99.5	0.0000	0.0000	0.0000	0.0000		0.748627	3.16542E-05
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	AIRP Class	5.81	1,141.8	0.0000	0.0003	0.0001	0.0000		0.737779	0.000220337
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	Delivery C	27.8	904.8	0.0000	0.0010	0.0001	0.0000		0.733163	0.000713756
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	Delivery C	16.1	500.0	0.0000	0.0006	0.0000	0.0000		0.730003	0.00040851
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	Delivery C	60.8	1,980.8	0.0000	0.0021	0.0001	0.0000		0.732035	0.001566252
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	Delivery C	17.2	866.3	0.0000	0.0011	0.0001	0.0000		0.781112	0.000881627
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	te Other Cla	115.1	4,370.5	0.0001	0.0037	0.0003	0.0001		0.733878	0.002742055
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	te Other Cla	255.6	9,710.3	0.0001	0.0083	0.0006	0.0002		0.730621	0.006091718
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	te Other Cla	166.3	6,311.9	0.0001	0.0054	0.0004	0.0002		0.731868	0.003977584
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	te Other Cla	141.9	5,439.8	0.0001	0.0069	0.0004	0.0001		0.783356	0.005431676
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	e Tractor Cl	0.0000	0.0000	0	0.0000	0	0		0.735438	1.76946E-10
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	e Tractor Cl	64.8	3,523.0	0.0000	0.0035	0.0002	0.0001		0.780274	0.002747696
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	OOS Class 4	0.6178	43.8	0.0000	0.0000	0.0000	0.0000		0.770795	1.64886E-05
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	OOS Class 5	0.7601	60.1	0.0000	0.0000	0.0000	0.0000		0.77195	2.15327E-05
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	OOS Class 6	3.44	157.1	0.0000	0.0001	0.0000	0.0000		0.770098	7.59382E-05
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	OOS Class 7	4.22	1,142.6	0.0000	0.0004	0.0001	0.0000		0.758468	0.000268022
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	ublic Class	7.31	250.9	0.0000	0.0003	0.0000	0.0000		0.848032	0.000271452
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	ublic Class	16.9	577.1	0.0000	0.0007	0.0000	0.0000		0.832551	0.000554267
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	ublic Class	9.77	334.3	0.0000	0.0003	0.0000	0.0000		0.826331	0.000259613
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	ublic Class	60.0	2,510.9	0.0000	0.0024	0.0002	0.0001		0.817262	0.001935832
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	tility Class 5	8.27	328.6	0.0000	0.0002	0.0000	0.0000		0.808763	0.000160016
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	tility Class 6	1.56	62.1	0.0000	0.0000	0.0000	0.0000		0.808738	3.00447E-05
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	tility Class 7	1.73	85.1	0.0000	0.0000	0.0000	0.0000		0.810971	3.56147E-05
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	AIRP Class	415.5	82,476.2	0.0061	0.1570	0.0135	0.0061		0.668816	0.105028415
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	OOS Class	455.4	125,255.6	0.0084	0.2755	0.0204	0.0091		0.692059	0.190687951
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	OOS Class	198.1	45,543.9	0.0036	0.1092	0.0075	0.0034		0.686054	0.07493128
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	er Port Clas	4.09	988.6	0.0000	0.0015	0.0002	0.0001		0.684897	0.001045859
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	OAK Class	15.9	1,897.1	0.0001	0.0035	0.0003	0.0001		0.680034	0.002402833
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	OLA Class	0.0000	0.0001	0	0.0000	0	0		0.676306	1.27029E-10
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	ublic Class	101.0	4,072.7	0.0003	0.0126	0.0007	0.0003		0.832122	0.010523196
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	WCV Class	31.0	2,012.1	0.0001	0.0043	0.0006	0.0002		0.963668	0.004168955
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	rete/Transit	3.61	223.6	0.0000	0.0003	0.0000	0.0000		0.7458	0.000242231
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	e Dump Cla	50.2	2,430.2	0.0001	0.0050	0.0004	0.0002		0.731121	0.003638117
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	e Other Cla	245.8	7,237.3	0.0006	0.0179	0.0011	0.0004		0.72453	0.012962298
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	actor Class	600.7	35,895.5	0.0028	0.0970	0.0057	0.0024		0.675339	0.065535116
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	tility Class 8	8.58	353.9	0.0000	0.0009	0.0001	0.0000		0.77899	0.000718443
1	Sub-Areas	27	Butte (SV)	2045	Summer	SV)-2045-S	UBUS-Dsl	0.0001	0.0042	0.0000	0.0000	0.0000	0.0000		1	8.8427E-10
								3,193.7	350,383.7	0.0227	0.7244	0.0532	0.0233	0.0000	30.5834	0.5017

PM2_5_AF102	Total _PM2_5_rev	M10_AF10	Total _PM10_rev
0.937517524	8.71574E-05	0.97381	0.000192204
1	9.55001E-06	1	2.58691E-05
1	1.38169E-08	1	3.19875E-08
1	4.08536E-05	1	9.43689E-05
1	0.002065394	1	0.004320007
1	0.001118128	1	0.002300187
1	4.91595E-05	1	0.000140585
1	6.47743E-05	1	0.000113765
0.911064737	4.41366E-05	0.95716	0.00010019
0.830047742	6.96491E-06	0.830048	7.27983E-06
0.988325935	3.6658E-05	0.994244	0.000101157
0.988743035	6.97357E-07	0.99585	1.82532E-06
0.988659078	9.58759E-07	0.995818	2.50905E-06
0.988802585	2.49497E-06	0.995872	6.52617E-06
0.979688777	2.87365E-05	0.992026	7.49861E-05
0.993153167	2.13468E-05	0.997551	6.12414E-05
0.993019109	1.17996E-05	0.997499	3.38444E-05
0.992835811	4.67298E-05	0.997434	0.000134064
0.984475621	2.09683E-05	0.994288	5.91888E-05
0.989815251	0.000103782	0.996309	0.000288298
0.990019457	0.000230649	0.996387	0.000640605
0.98987118	0.000149954	0.996328	0.000416434
0.979402575	0.00013451	0.992276	0.00036447
0.990146872	1.8968E-12	0.996433	3.53307E-12
0.977403145	8.64665E-05	0.991337	0.000235322
0.982870829	1.09936E-06	0.993107	2.87418E-06
0.982679948	1.50894E-06	0.993027	3.94371E-06
0.983118837	3.93887E-06	0.993209	1.03008E-05
0.97826138	2.88819E-05	0.991189	7.51527E-05
0.984569255	6.475E-06	0.994069	1.73216E-05
0.987533569	1.45121E-05	0.995253	3.94376E-05
0.988129866	8.06084E-06	0.99545	2.24801E-05
0.989401783	6.14988E-05	0.995928	0.000169847
0.997592247	7.65406E-06	0.999148	2.16638E-05
0.997627295	1.44594E-06	0.999161	4.09439E-06
0.997819288	1.97892E-06	0.99923	5.60627E-06
0.903587932	0.005476972	0.956576	0.012886421
0.902106998	0.008253726	0.95408	0.019462462
0.893315538	0.003049659	0.949283	0.007128152
0.951529489	5.98527E-05	0.980566	0.000156694
0.947535459	0.000115825	0.978811	0.00030172
0.919266711	6.20442E-12	0.964555	1.6149E-11
0.978743577	0.000246163	0.992104	0.000680995
0.993870037	0.00021861	0.997262	0.000582674
0.984138949	1.29189E-05	0.994149	3.39272E-05
0.962244482	0.000145634	0.985359	0.000372101
0.964802899	0.000427922	0.986427	0.001102956
0.928117417	0.002216572	0.969109	0.005523985
0.989376927	1.98206E-05	0.996187	5.61152E-05
1	2.33731E-10	1	5.54809E-10
39.0026	0.0213	39.5829	0.0511

Total VMT by Speed Bin

	2022				2025				2035				2045			
Speed Bin	**II VMT**	**IXXI VMT**	**XX VMT**	**Total VMT**	**II VMT**	**IXXI VMT**	**XX VMT**	**Total VMT**	**II VMT**	**IXXI VMT**	**XX VMT**	**Total VMT**	**II VMT**	**IXXI VMT**	**XX VMT**	**Total VMT**
0-5	2,521	103	0	2,625	2,807	264	10	3,080	3,757	799	42	4,597	3,732	806	47	4,585
5-10	7,839	1,224	41	9,105	8,440	1,082	44	9,567	10,444	611	51	11,106	10,408	625	59	11,092
10-15	5,916	686	35	6,637	5,797	553	27	6,377	5,400	112	0	5,512	6,117	292	63	6,472
15-20	11,941	538	44	12,523	12,950	611	46	13,607	16,313	855	55	17,223	12,441	591	0	13,032
20-25	441,330	24,163	299	465,792	451,814	23,334	362	475,511	486,762	20,569	574	507,905	499,885	21,096	661	521,642
25-30	134,738	4,028	1	138,768	137,889	3,950	2	141,841	148,391	3,687	5	152,083	148,692	3,729	7	152,428
30-35	908,639	68,661	1,912	979,212	932,031	63,149	2,023	997,203	1,010,005	44,777	2,393	1,057,176	1,027,880	43,232	2,763	1,073,875
35-40	138,816	12,031	556	151,403	142,117	12,435	605	155,156	153,121	13,781	766	167,668	153,389	13,785	859	168,033
40-45	525,737	145,715	3,916	675,368	544,544	138,792	3,944	687,280	607,231	115,717	4,037	726,985	636,894	121,353	4,834	763,081
45-50	74,816	34,059	2,760	111,635	80,871	30,546	3,046	114,463	101,055	18,838	3,998	123,891	120,322	21,382	4,790	146,495
50-55	261,251	100,016	16,285	377,552	299,407	93,561	17,562	410,531	426,595	72,044	21,821	520,459	433,980	72,617	25,327	531,924
55-60	90,811	46,400	6,438	143,649	97,106	48,187	7,042	152,335	118,086	54,146	9,057	181,289	120,547	54,883	10,503	185,932
60-65	1,216,818	274,596	55,068	1,546,482	1,240,589	265,188	57,465	1,563,241	1,319,825	233,825	65,456	1,619,106	1,343,469	237,502	74,920	1,655,891
65-70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70-75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total VMT	**3,821,174**	**712,221**	**87,355**	**4,620,750**	**3,956,361**	**681,653**	**92,178**	**4,730,192**	**4,406,984**	**579,761**	**108,255**	**5,095,000**	**4,517,758**	**591,891**	**124,833**	**5,234,482**

50 or higher	2,067,683	2,373,747
Percentage above 50	45%	45%

Speed Fractions (All Vehicles)

2022	0.00056806	0.00197	0.001436	0.0027101	0.1008045	0.0300314	0.211916	0.0327658	0.14615987	0.0241595	0.0817081	0.0310878	0.334682
2025	0.00065114	0.002022	0.001348	0.0028767	0.1005267	0.0299862	0.210817	0.0328013	0.1452964	0.0241984	0.0867895	0.0322048	0.33048155
2035	0.00090232	0.00218	0.001082	0.0033804	0.099687	0.0298495	0.207493	0.0329083	0.14268606	0.0243161	0.102151	0.0355818	0.3177833
2045	0.00087588	0.002119	0.001236	0.0024897	0.099655	0.0291199	0.205154	0.0321011	0.14577974	0.0279865	0.1016192	0.0355207	0.31634283

Speed Fractions (All Vehicles)

2022	2025	2035	2045
0.000568	0.000651	0.000902	0.000876
0.00197	0.002022	0.00218	0.002119
0.001436	0.001348	0.001082	0.001236
0.00271	0.002877	0.00338	0.00249
0.100805	0.100527	0.099687	0.099655
0.030031	0.029986	0.02985	0.02912
0.211916	0.210817	0.207493	0.205154
0.032766	0.032801	0.032908	0.032101
0.14616	0.145296	0.142686	0.14578
0.02416	0.024198	0.024316	0.027986
0.081708	0.086789	0.102151	0.101619
0.031088	0.032205	0.035582	0.035521
0.334682	0.330482	0.317783	0.316343

2022	2025	2035	2045
0.000568	0.000651	0.000902	0.000876
0.00197	0.002022	0.00218	0.002119
0.001436	0.001348	0.001082	0.001236
0.00271	0.002877	0.00338	0.00249
0.100805	0.100527	0.099687	0.099655
0.030031	0.029986	0.02985	0.02912
0.211916	0.210817	0.207493	0.205154
0.032766	0.032801	0.032908	0.032101
0.14616	0.145296	0.142686	0.14578
0.02416	0.024198	0.024316	0.027986
0.081708	0.086789	0.102151	0.101619
0.031088	0.032205	0.035582	0.035521
0.334682	0.330482	0.317783	0.316343

Appendix C

Biological Resources Background Information

Habitats in the Plan Area

Tree Dominated Habitats

Subalpine Conifer

Subalpine Conifer habitat type is found in the extreme northeast corner of Butte County. This habitat type is composed of open structure evergreen forests at high elevations and typically occupies extremely harsh environments. Mountain hemlock *(Tsuga mertensiana)*, western white pine *(Pinus monticola)*, lodgepole pine (*Pinus contorta*), and whitebark pine (*Pinus albicaulis*) are tree species that typify this habitat type. Soils are generally thin and of low-quality coarse sand, gravel, volcanic debris, and rocks derived from decomposing parent material. Most stands of subalpine conifer are on dry, well-drained soils. Precipitation averages 30 to 50 inches and heavy snow cover is usual. Mean summer high temperatures generally do not exceed 65 degrees Fahrenheit (F) and killing frosts are possible during all months. Intense winds are also characteristic of this habitat. These harsh conditions typically support fewer species than any other major forest type in the State.

Red Fir

Red Fir habitat type is found in the extreme northeast corner of Butte County and occurs from approximately 6,000 to 9,000 feet (ft) in elevation. This habitat type is typified by even-aged groups of red fir (*Abies magnifica*) trees. Red Fir habitat is found on frigid soils of very wet sites. Annual precipitation ranges from 40 to 50 inches per year, primarily as snow that forms packs up to 15 ft in winter. Summers are dry, limiting tree growth to seasonally available soil moisture. Red fir habitat provides food and cover to many species and is considered a very important habitat for goshawk (*Accipiter gentilis*), blue grouse (*Dendragapus fuliginosus*), great gray owl (*Strix nebulosa*), red fox (*Vulpes vulpes*), American marten (*Martes americana*), and wolverine (*Gulo gulo*).

Lodgepole Pine

Lodgepole Pine habitat type is found in the extreme northeast corner of Butte County and occurs above 5,900 ft in elevation. It is typically found above the red fir habitat type and below other subalpine conifer habitats. Lodgepole pine habitat typically forms open stands of similarly sized trees with a sparse understory. Lodgepole pine is commonly associated with meadows and typically occupies areas with seasonally wet soils. Annual precipitation in the Lodgepole Pine zone averages from 30 to 40 inches annually, mostly as snow. The growing season is short, averaging 2 to 3 months. Lodgepole pine habitat generally has low species richness.

Sierran Mixed Conifer

Sierran Mixed Conifer habitat is found on the eastern edge of Butte County in the higher elevations. It is typified by white fir (*Abies concolor*), Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), incense cedar (*Calocedrus decurrens*), and California black oak (*Quercus kelloggii*). This habitat type is found in varied soils, ranging from deep to shallow. Serpentine soils, found primarily in the northern mixed conifer zone, support a number of endemic plants. Fissures and cracks in granitic parent material often support forest growth, even where soil development is shallow. Temperatures range from 40 to 96 degrees F in summer and 10 to 60 degrees F in winter, and decrease with elevation. Precipitation ranges from 30 to 90

inches per year, from October to May, with increasing snowfall as elevation increases. Sierran Mixed Conifer is extremely important habitat for many sensitive species, such as California spotted owl (*Strix occidentalis occidentalis*), bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), fisher (*Martes pennanti*), and American marten.

White Fir

White Fir habitat type is found at mid to high elevations in northern and northeastern Butte County. This habitat type is fairly monotypic, and is composed of an average of 80 percent white fir trees. Soils are coarse textured, well-drained, have poorly developed profiles, are often rocky, and are cold, with mean annual temperatures from 32 to 50 degrees F. Cooler north- and east-facing slopes are the most common sites where White Fir habitat occurs throughout the State. Precipitation is between 30 to 70 inches, mostly in the form of snow. Almost all precipitation falls between October and May. Wildlife habitat quality increases, mostly in the form of snag trees, as the maturity of these forests increases. White fir is the preferred tree species for many forest-dwelling insect-gleaning songbirds.

Douglas Fir

Douglas Fir habitat type is found in eastern Butte County in the mid to higher elevations. Douglas fir, tanoak (*Notholithocarpus desniflorus*), and ponderosa pine typify the canopy of this habitat type. The Douglas Fir habitat type is typically found in areas with hot, dry summers and cool, mild, wet winters. Temperatures range from 57 to 72 degrees F in the summer to 32 to 46 degrees F in the winter. Annual precipitation varies from 24 to 27 inches, with generally less than 15 percent falling during summer. Topography is characterized by rugged, deeply dissected terrain and steep slopes, especially toward the south. The Douglas Fir habitat type supports a wide variety of wildlife species, many considered sensitive, threatened, or endangered.

Jeffrey Pine

Jeffrey Pine habitat type occurs in the extreme northeast corner of Butte County at high elevations. Tree species typically found in the Jeffrey Pine habitat type are Jeffrey pine (*Pinus jeffreyi*), ponderosa pine, and sugar pine. The tolerance of Jeffrey pine to low temperatures allows the habitat type to occupy the borders of topographic frost pockets and high cold ridges. It is commonly found on soils developed from granite and lava flows, but can also develop as a type on ultramafic soils. Jeffrey pine is not restricted by aspect or slope. Jeffrey Pine habitat is intermediate in wildlife species richness between warmer forest at lower elevations, and colder forests at higher elevations. Jeffrey pine seeds are included in the diet of more wildlife species than any other genus besides oak.

Ponderosa Pine

Ponderosa Pine habitat type is found in eastern Butte County from mid to higher elevations. The canopy is typified by ponderosa pine, Jeffrey pine, and Douglas fir. Ponderosa Pine habitat type is found on all aspects, depending on soils and location within the local elevation range. Ponderosa Pine stands occur above Valley Oak Woodland, Blue Oak Woodland, Blue Oak-Foothill Pine, and below Mixed Conifer habitat types. Mean annual temperature is generally less than 55 degrees F and precipitation is greater than 33 inches. Less than one-third of the precipitation is snowfall. The Ponderosa Pine habitat type is sometimes a transitional or migratory habitat for deer and can be extremely important to deer nutrition in migration holding areas.

Eastside Pine

Eastside Pine habitat type is found at mid to high elevations in northern and northeastern Butte County. The canopy is typified by short to moderate height ponderosa pine, Jeffrey pine, and white fir. It occurs on coarse, well-drained basaltic soils in a drier, colder setting than the Ponderosa Pine habitat type. Eastside pine occupies an intermediate, less harsh environment than Jeffrey pine, which occurs above and intermingles with eastside pine. Large pine branches form good nesting substrates for large raptors. Eastside pine stands often form important migratory and winter range for deer. Higher elevation stands with grassy understories near water may be extremely important deer fawning areas and migratory holding areas.

Juniper

Juniper habitat type occurs at mid elevations in the foothills of Butte County. The canopy of the juniper habitat type is typified by western juniper (*Juniperus occidentalis*), white fir, and Jeffrey pine. Juniper habitat type occurs on ridges, slopes, alluvial fans, and valley bottoms on soils that are porous, rocky, coarse, sandy, or silty, and often very shallow. Juniper berries are an important food source for wintering birds.

Aspen

Aspen habitat type occurs at high elevations near seeps, streams, and meadows on eastern slopes in northeastern Butte County. The Aspen habitat type is dominated by quaking aspens (*Populus tremuloides*), with subdominant species such as willow species (*Salix* sp.), and black cottonwood (*Populus trichocarpa*). A high water table during the early part of the growing season is required, and their presence is an indicator of moist conditions. Sites with permanent high water tables are occupied by willows, with which aspens may form ecotones. Soils range from shallow stony soils and loamy sands, to heavy clays. Best development occurs on well-drained sandy to silt loam soils. The climate has rigorous, long winters with heavy snows and very cold temperatures. Mesic sites produce large numbers of insects that are a large food source of many migratory birds. Meadows associated with the Aspen habitat type provide important deer fawning areas.

Closed-Cone Pine-Cypress

Closed-Cone Pine-Cypress habitat type occurs in the extreme southeast corner of Butte County at mid to high elevations. More specifically, this habitat type occurs southeast of Lake Oroville. Macnab cypress (*Cupressus macnabiana*) occurs in low abundance in this habitat type when found in Butte County. This habitat type is dominated by pines such as knobcone pine (*Pinus attenuata*). It often occurs as “arboreal islands” within a matrix of chaparral or Montane Hardwood-Conifer or Mixed Conifer habitats. This habitat type is typically found on sites that are more rocky and infertile than the surrounding soils. Many stands are found on serpentine soils. Although typically found at low elevations due to the coastal distribution of much of this habitat type, interior stands may be found at elevations up to 6550 ft. Landforms are gentle to steep slopes where stands occur in interior California. Numerous wildlife species use this habitat type for feed and cover.

Montane Hardwood-Conifer

Montane Hardwood-Conifer habitat occurs over eastern Butte County and some of the western portions of northern Butte County. The closed canopy of this habitat type is typified by ponderosa pine, incense cedar, and California black oak. It generally occurs on coarse, well drained mesic

soils, in mountainous terrain with narrow valleys. Slopes average approximately 57 percent with all aspects encountered. Winters are cool and wet; summers are hot and dry. Northern California Montane Hardwood-Conifer sites have less rainfall and fog than Redwood or Mixed Conifer habitats. Average rainfall is 25 to 65 inches, with some fog. The Montane Hardwood-Conifer habitat type provides valuable wildlife habitat for cavity nesting birds, as well as an abundant food source from masting hardwoods.

Montane Hardwood

Montane Hardwood habitat occurs over eastern Butte County and some of the western portions of northern Butte County. The canopy of this habitat type is dominated by canyon live oak (*Quercus chrysolepis*), California black oak, and Oregon white oak (*Quercus garryana*). It is found on a wide range of slopes, especially those that are moderate to steep. Soils are for the most part rocky, alluvial, coarse textured, poorly developed, and well drained. Soil depth ranges from shallow to deep. Summer temperatures vary between 68 and 77 degrees F and in winter vary from 37 to 45 degrees F. Animal species characteristic of the Montane Hardwood habitat include disseminators of acorns, such as the acorn woodpecker (*Melanerpes formicivorus*), and other species that utilize acorns as a major food source (e.g. dusky-footed woodrat [*Neotoma fuscipes*], black bear [*Ursus americanus*], and mule deer [*Odocoileus hemionus*]). Many species of amphibians and reptiles are found on the forest floor in Montane Hardwood habitat.

Blue Oak Woodland

Blue Oak Woodland habitat type occurs in the foothills of Butte County. The canopy of this habitat type possesses a scattered overstory dominated by blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizeni*), and California buckeye (*Aesculus californica*). It is usually associated with shallow, rocky, infertile, well-drained soils from a variety of parent materials. The climate is Mediterranean, with mild wet winters and hot dry summers. Average annual precipitation varies from 20 to 40 inches over most of the range, although extremes are noted from 10 to 60 inches. Mean temperatures range from 75 to 96 degrees F in summer and 29 to 42 degrees F in winter. Blue Oak Woodland habitat is important for cavity nesting birds, as well as the many species that forage on the acorns of these trees.

Valley Oak Woodland

Valley Oak Woodland habitat type occurs in the western portion of Butte County in low elevations. This habitat type occurs in a wide range of physiographic settings but is best developed on deep, well-drained alluvial soils, usually in valley bottoms. Valley oak (*Quercus lobata*) trees dominate the canopy of this habitat type. Other trees associated with the Valley Oak Woodland habitat in the Central Valley include California sycamore (*Platanus racemosa*), interior live oak, and blue oak. Most large, healthy valley oaks are probably rooted down to permanent water supplies. Valley Oak Woodlands are associated with a Mediterranean climate; mild, wet winters and hot, dry summers. These woodlands provide food and cover for many species of wildlife.

Blue Oak-Foothill Pine

Blue Oak-Foothill Pine habitat type occurs in the mid elevation foothills of Butte County. This habitat type is typically diverse in structure both vertically and horizontally. The canopy is typically composed of blue oak, foothill pine, and interior live oak. Blue Oak-Foothill Pine is associated with a Mediterranean climate with hot, dry summers and cool, wet winters. Most precipitation falls as

rain from November through April, averaging 20 to 40 inches within the primary range of blue oak. The frost-free growing season ranges from 150 to 300 days, with winter temperatures averaging 30 degrees F and summer temperatures averaging 90 degrees F. Soils are from a variety of generally well-drained parent materials, ranging from gravelly loam to stony clay loam, with soils commonly rich in rock fragments. This habitat type is used by a large variety of wildlife species, although no species is totally dependent on it for breeding, feeding, or cover.

Eucalyptus

Eucalyptus habitat type occurs in low elevations of western Butte County. Both blue gum eucalyptus (*Eucalyptus globulus*) and red gum eucalyptus (*Eucalyptus camaldulensis*) have been extensively planted throughout the state since their introduction in 1856, with large-scale planting operations beginning in 1870. As such, they are found in locations with highly variable site characteristics. Generally, they are found on relatively flat or gently rolling terrain, occasionally in the foothills. Climatic conditions are typically referred to as Mediterranean, characterized by hot, dry summers and cool, mild winters. Precipitation ranges from approximately 12 to 24 inches. Eucalyptus demonstrates the ability to withstand many temperature conditions, with the exception of prolonged cold or freezing weather. Eucalyptus trees are important as roosts, perches, and nest sites for a number of bird species, particularly raptors. Hummingbirds use the nectaries of eucalyptus as a significant food source.

Montane Riparian

Montane Riparian habitat type is found in high elevations of eastern Butte County. This habitat type is found associated with montane lakes, ponds, seeps, bogs and meadows as well as rivers, streams and springs. Water may be permanent or ephemeral. The canopy is dominated by black cottonwood, bigleaf maple (*Acer macrophyllum*), and white alder (*Alnus rhombifolia*). The growing season extends from spring until late fall, becoming shorter at higher elevations. Most tree species flower in early spring before leafing out. Riparian habitats offer exceptionally high value for many wildlife species by providing water, thermal cover, migration corridors, and diverse nesting and feeding opportunities.

Valley-Foothill Riparian

Valley-Foothill Riparian habitat type occurs in the low elevation of western Butte County. The canopy of this habitat is typified by cottonwood species, sycamore, and valley oak. This habitat type is found in valleys bordered by sloping alluvial fans, slightly dissected terraces, and lower foothills. They are generally associated with low-velocity flows, flood plains, and gentle topography. Valleys provide deep alluvial soils and a high water table. The substrate is coarse, gravelly or rocky soils more or less permanently moist, but probably well aerated. Frost and short periods of freezing occur in winter (200 to 350 frost-free days). This habitat type is located within areas featuring a Mediterranean climate; characterized by hot, dry summers and mild, wet winters. Mean temperatures range from 75 to 102 degrees F in the summer to 29 to 44 degrees F in the winter. Average precipitation ranges from 6 to 30 inches, with little or no snow. The Valley-Foothill Riparian habitat type provides significant sources of food, water, migration and dispersal corridors, and escape, nesting, and thermal cover for an abundance of wildlife.

Shrub Dominated Habitats

Low Sage

Low Sage habitat type occurs in the high elevations of north and northeastern Butte County. The shrub layer is relatively spread out and consists of low sagebrush (*Artemisia arbuscula*), black sagebrush (*Artemisia nova*), and rubber rabbitbrush (*Ericameria nauseosa*). The habitat occurs in areas with cold, harsh winters and hot, dry summers. Precipitation generally ranges from 8 to 18 inches, falling mostly as snow from December through March. Stands of low sagebrush are usually found on shallow soils with impaired drainage in the transition zone between the wetter bottom and open timber on the mountainsides. The type also occurs on terraces with hardpan or heavy clay soils. In mosaics formed with bitterbrush (*Purshia tridentata*), low sagebrush occurs on harsher sites with shallow, well-drained soils, and bitterbrush occupies areas with deeper soils. The clay-rich soils yield much of their snowmelt as runoff, making them very important watershed areas. Low Sage habitat tends to lose its snow cover earlier in spring than surrounding habitats; thus it provides an especially important source of new, green forage for mule deer.

Bitterbrush

Bitterbrush habitat type occurs in the extreme northeast corner of Butte County at high elevation. The habitat type is dominated by bitterbrush, big sagebrush (*Artemisia tridentata*), and rubber rabbitbrush. Overstory species are often ponderosa or Jeffrey pine, lodgepole pine, or western juniper. Bitterbrush habitat is found on flats and slopes with deep, well-drained, rapidly permeable soils having a slightly acidic reaction (pH 6.0 to 7.0). Precipitation in Bitterbrush habitat varies from about 12 to 35 inches and is in the form of mostly snow in the winter. Summers are warm and winters are very cold in Bitterbrush habitat. Basins and lowlands that have restricted drainage or alkali give way to low sagebrush, silver sagebrush, or one of the more moisture-tolerant species. Bitterbrush is highly digestible and its leaves and twigs are favored by mule deer. Many bird species will eat the seeds or the insects that are commonly feeding on bitterbrush.

Sagebrush

Sagebrush habitat type occurs at middle and high elevations in northern and northeastern Butte County. Sagebrush habitat type is often composed of large, discontinuous stands of big sagebrush. Some other species found within Sagebrush habitat are rabbitbrush, horsebrush (*Tetradymia canescens*), and gooseberry (*Ribes uva-crispa*). At high elevations Sagebrush habitat intergrades with Ponderosa Pine and Aspen habitat types. This habitat type is important summer grounds for mule deer and is used by a wide variety of bird and mammal species.

Montane Chaparral

Montane Chaparral habitat type is found from mid to high elevations in eastern Butte County. In the northern portion of the state, Montane Chaparral is found from 3000 to 9000 ft in elevation. Montane Chaparral can be found on shallow to deep soils on all exposures and from gentle to relatively steep slopes. Montane Chaparral is typified by ceanothus species, manzanita species (*Arctostaphylus* sp.), and bitter cherry (*Prunus emarginata*). It may dominate on more xeric sites, but occurs locally throughout the coniferous forest zone. Generally, the climatic conditions are like that associated with the coniferous forest zone; cold winter temperatures with substantial precipitation. Summers are typically hot and dry. Rodents, deer, birds, and other herbivores often

make extensive use of chaparral. It provides seeds, fruits, insects, protection from predators and climate, as well as singing, roosting and nesting sites.

Mixed Chaparral

Mixed Chaparral habitat type occurs at mid to high elevations in eastern Butte County. This habitat type is commonly comprised of scrub oak (*Quercus berberidifolia*), ceanothus species, and manzanita species. It occurs on all aspects, but at lower elevations it is generally found on north-facing slopes. Generally, it occurs on steep slopes and ridges with relatively thin, well -drained soils. Soils can be rocky, sandy, gravelly, or heavy. Mixed Chaparral habitat occurs within Mediterranean climates characterized by cool, wet winters and hot, dry summers. Total rainfall is 15 to 25 inches, with less than 20 percent falling during the summer. Wildlife management considerations usually focus on selecting alternative fire management treatments. This habitat type is similar to Chamise-Redshank Chaparral.

Chamise-Redshank Chaparral

Chamise-Redshank Chaparral habitat type is found at mid to high elevations in eastern Butte County. Fire is the main component influencing Chamise-Redshank Chapparral habitat structure. This habitat type is found in a Mediterranean climate; rainfall is 15 to 25 inches, less than 20 percent of total precipitation falls in summer, and winters are mild. The predominant land forms are steep slopes and ridges. Chamise (*Adenostoma fasciculatum*) is the dominant species with redshank (*Persicaria maculosa*), and Ceanothus species as the subdominant species. Chamise-dominated stands are most common on south- and west-facing slopes; redshank is found on all aspects. Soils are usually thin with little accumulation of organic material. Chamise may be a dominant shrub on some serpentine sites.

Herbaceous Dominated Habitats

Annual Grassland

Annual Grassland habitat type is found over the entirety of Butte County. It is typically dominated by wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), and other brome species. This habitat type occurs mostly on flat plains to gently rolling foothills, often as the understory to valley oak woodlands. Climatic conditions are typically Mediterranean, with cool, wet winters and dry, hot summers. The length of the frost-free season averages 250 to 300 days. Many wildlife species use Annual Grasslands for foraging, but some require special habitat features such as cliffs, caves, ponds, or habitats with woody plants for breeding, resting, and escape cover.

Perennial Grassland habitat type occurs over the entirety of Butte County. California oatgrass (*Danthonia californica*), Pacific hairgrass (*Deschampsia cespitosa*), and sweet vernalgrass (*Anthoxanthum odoratum*) are typical species found in Perennial Grassland. This habitat type typically occurs on ridges and south-facing slopes, alternating with forest and scrub in the valleys and on north-facing slopes. Historically, factors that have affected Perennial Grassland habitat include the introduction of non-native annual plant species, increased grazing pressure, elimination of frequent fires, and cultivation. Perennial Grassland habitats are most often found on Mollisols. Perennial grasslands are most productive in wetter and cooler conditions and provide optimal habitat for many species of wildlife.

Wet Meadow

Wet Meadow habitat type occurs in mid to high elevations in eastern Butte County. Dominant species in the Wet Meadow habitat type include sedge species (*Carex* sp.), rush species (*Juncus* sp.), and hairgrass species (*Deschampsia* sp.). This habitat type occurs where water is at or near the surface most of the growing season. Hydrologically, they occupy lotic, sunken concave, and hanging sites. They frequently occur on rather steep slopes, and downstream runoff is the main output flow. Surface flows, although constant, are usually no more than 0.4 inches deep. Various mammals, frogs, waterfowl, and blackbirds often use Wet Meadow habitat.

Fresh Emergent Wetland

Fresh Emergent Wetland habitat type has the potential to occur over the entirety of Butte County. Fresh Emergent Wetland is characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial monocots. This habitat type occurs on virtually all exposures and slopes, provided a basin or depression is saturated or at least periodically flooded. They are most common on level to gently rolling topography. They are found in various depressions or at the edge of rivers or lakes. Soils are predominantly silt and clay, although coarser sediments and organic material may be intermixed. In some areas organic soils (peat) may constitute the primary growth medium. Climatic conditions are highly variable and range from the extreme summer heat to winter temperatures well below freezing. Fresh Emergent Wetlands are among the most productive wildlife habitats in California. Fresh Emergent Wetlands function as a filtering and purifying system for much of the State's water.

Pasture

Pasture habitat type is found in the valley, or western portion, of Butte County. Pastures often contain Bermuda grass (*Cynodon dactylon*), perennial ryegrass (*Festuca perennis*), and tall fescue *(Festuca arundinacea*). They are planted on flat and gently rolling terrain. Climate influences the length of growing season. For example, pastures at higher elevations, or in the north, have a shorter growing season. Pastures are used by a variety of wildlife depending upon geographic area and types of adjacent habitats. Ground-nesting birds use pastures if adequate residual vegetation is present at the onset of the nesting season.

Aquatic Habitats

Riverine

Riverine habitat type is found across Butte County wherever rivers and streams are found. Water moss (*Fontinalis antipyretica*), algae, and duckweed (*Lemna* sp.) are often the dominant aquatic plants found in the Riverine habitat type. Riverine habitats are also found contiguous to Lacustrine and Fresh Emergent Wetland habitats. This habitat requires intermittent or continually running water generally originating at some elevated source, such as a spring or lake. Velocity generally declines at progressively lower altitudes, and the volume of water increases until the enlarged body of water finally becomes sluggish. Over this transition from a rapid, surging stream to a slow, sluggish river, water temperature and turbidity will tend to increase, dissolved oxygen will decrease and the bottom will change from rocky to muddy. Many sensitive, threatened, and endangered aquatic species utilize Riverine habitats. Bird species use the Riverine habitat type extensively, as well as mammals such as river otter (*Lontra canadensis*), mink (*Neovison vison*), muskrat (*Ondatra zibethicus*), and beaver (*Castor canadensis*).

Lacustrine

Lacustrine habitat type is found across Butte County wherever there are inland depressions or dammed riverine channels containing standing water. Typical species found in the Lacustrine habitat type are plankton, duckweed, yellow pond-lily (*Nuphar lutea*), and American white water-lily (*Nymphaea odorata*). These habitats may occur in association with any terrestrial habitats, Riverine or Fresh Emergent Wetlands. They may vary from small ponds less than one hectare to large areas covering several square kilometers. Depth can vary from a few centimeters to hundreds of meters. Typical lacustrine habitats include permanently flooded lakes and reservoirs, intermittent lakes and ponds (including vernal pools) so shallow that rooted plants can grow over the bottom. Most permanent lacustrine systems support fish life; intermittent types usually do not. Many species of wildlife congregate at Lacustrine habitats and utilize them for reproduction, food, water, and cover.

Developed Habitats

Dryland Grain Crops

Dryland Grain Crops habitat type occurs in the lowlands of western Butte County. Cereal rye (*Secale cereale*), barley (*Hordeum vulgare*), and wheat (*Triticum aestivum*) are typical crops farmed in the Dryland Grain Crops habitat type. They are often located on flat to gently rolling terrain. When flat terrain is put into crop production, it usually is leveled to facilitate irrigation. Rolling terrain is either dry farmed or irrigated by sprinklers. Soils often dictate the crops grown. Barley can grow on poor quality soils, such as saline or alkaline soils. Climate also influences the types of crops grown. Grain crops have reduced wildlife habitat richness and diversity in these areas. Small mammals, some birds, and raptors will forage in this habitat type.

Irrigated Grain Crops

Irrigated Grain Crops habitat type occurs in the lowlands of western Butte County. Corn (*Zea mays*), dry beans, and safflower (*Carthamus tinctorius*) are typical crops farmed in the Irrigated Grain Crops habitat type. They are often located on flat to gently rolling terrain. When flat terrain is put into crop production, it usually is leveled to facilitate irrigation. Rolling terrain is either dry farmed or irrigated by sprinklers. Soils often dictate the crops grown. Corn requires better soils than barley, which can grow on poor quality soils, such as saline and alkaline soils. Rice (*Oryza* sp.) and barley can do well on clay soils not suitable for other crops. Leaching can remove contaminants in areas of high salt or alkali levels, making the soils highly productive. Climate also influences the types of crops grown. Irrigated grain and seed crops are established on the State's most fertile soils, which historically supported an abundance of wildlife unequalled in other sites. Croplands have greatly reduced the wildlife habitat richness and diversity in California. Small mammals, some birds, and raptors will forage in this habitat type.

Irrigated Hayfield habitat type occurs in the valley, or western portion of Butte County. It occurs in variable climates, from hot and dry, to cool and wet, to cold and snowy. Irrigated hayfield requires relatively flat topography that allows irrigation or water-spreading. Soils are highly variable but usually more than 1 meter (3.3 feet) deep and often of alluvial origin. Alfalfa (*Medicago sativa*) and hay are crops typically farmed in the Irrigated Hayfield habitat type. This habitat provides a high quality seasonal resource for many birds, mammals, and snakes. However, where harvesting is constant, reproduction values for ground-nesting species are reduced to zero. If rotational

cropland is adjacent, this habitat can provide cover during seasonal disking and planting on the rotated fields.

Irrigated Row and Field Crops

Irrigated Row and Field Crops habitat type occurs in the valley, or the western portion of Butte County. Tomatoes, cotton, and lettuce are typical crops farmed on the Irrigated Row and Field Crops habitat type. They are often located on flat to gently rolling terrain. When flat terrain is put into crop production, it usually is leveled to facilitate irrigation. Rolling terrain is either dry farmed or irrigated by sprinklers. Soils often dictate the crops grown. Cotton and sugar beets can grow on poor quality and alkaline soils. These soils are not suited for many row and field crops unless leaching of salts is practiced. Leaching can remove contaminants in areas of high salt or alkali levels, making the soils highly productive. Climate also influences the types of crops grown. Row and field crops are established on the State's most fertile soils, which historically supported an abundance of wildlife unequalled in other areas. Croplands have greatly reduced the wildlife habitat richness and diversity in California. Small mammals, some birds, and raptors will forage in this habitat type. Monoculture often results in very low species richness in this habitat type.

Rice

Rice habitat type occurs in the valley, or western portion of Butte County. It is usually located on flat terrain. When flat terrain is put into rice production, it usually is leveled to facilitate irrigation. Rice can grow on poor quality soils. Rice and barley can grow well on clay soils not suitable for other crops. Leaching or flushing can remove contaminants in areas of high salt or alkali levels, making the soils more productive, which has occurred throughout the Sacramento Valley. Rice fields are supportive of many types of waterfowl, shorebirds, and raptors. They offer foraging opportunities in the form of waste grain and migration refugia.

Deciduous Orchard

Deciduous Orchard habitat type can be found on flat alluvial soils in the valley floors of Butte County, in rolling foothill areas, or on relatively steep slopes. Though some deciduous orchards are non-irrigated, most are irrigated. Some flat soils are flood irrigated, but many deciduous orchards are sprinkler irrigated. Large numbers of orchards are irrigated by drip or trickle irrigation systems. Most deciduous orchards are in valley or foothill areas, with a few, such as, apples and pears, up to 3000 feet in elevation. Typical crops farmed in this habitat type include almonds, walnuts, plums, and pistachios. Many birds and small mammals forage on the crops, but rarely nest due to human disturbance. Monoculture often results in very low species richness in this habitat type.

Evergreen Orchard

Evergreen Orchard habitat type can be found on flat alluvial soils in the valley floors in southwest Butte County. All are irrigated. Some flat soils are flood irrigated, such as with dates, but most evergreen orchards are sprinkler irrigated. Large numbers of orchards are irrigated by drip or trickle irrigation systems. Most evergreen orchards are in valley or foothill areas. Except for olive, most evergreen orchard trees are not very frost tolerant. Oranges and lemons are crops typically farmed in the Evergreen Orchard habitat type. Many birds and small mammals forage on the crops, but rarely nest due to human disturbance. Monoculture often results in very low species richness in this habitat type.

Vineyard

Vineyard habitat type can be found on flat alluvial soils in the valley floors in western Butte County. All vineyards are irrigated, with most being sprinkler irrigated. Large numbers of vineyards are irrigated by drip or trickle irrigation systems. Most vineyards are located in valley or foothill areas. Common crops farmed in vineyards are grapes, kiwi, and blackberries. Many birds and small mammals forage on the crops, but rarely nest due to continuous human disturbances. Monoculture often results in very low species richness in this habitat type.

Urban

Urban habitat type is not limited to any particular physical setting. It occurs anywhere in Butte County where there is human development or cities. Three Urban categories relevant to wildlife are distinguished: downtown, urban residential, and suburbia. The heavily developed downtown is usually at the center, followed by concentric zones of urban residential and suburbs. There is a progression outward from the city center of decreasing development and increasing vegetative cover. Species richness and diversity is extremely low in Urban habitat. The structure of urban vegetation varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. A distinguishing feature of the urban wildlife habitat is the mixture of native and exotic species. Plants typical to an urban setting include ornamental trees, grass lawns, and hedges.

Non-vegetated Habitat

Barren

Barren habitat type is defined by the absence of vegetation. Any habitat with less than 2% total vegetation cover by herbaceous, desert, or non-wildland species and less than 10% cover by tree or shrub species is defined as Barren. The physical settings for permanently barren habitat represent extreme environments for vegetation. An extremely hot or cold climate, a near-vertical slope, an impermeable substrate, constant disturbance by either human or natural forces, or a soil either lacking in organic matter or excessively saline can each contribute to a habitat being inhospitable to plants. Barren habitat type usually consists of rock, gravel, and soil and provides little to no wildlife habitat. Some ground-nesting species, such as killdeer (*Charadrius vociferous*), may nest in Barren habitat. Cliffs are important habitat for peregrine falcon eyries.

Wetlands in the Plan Area

Canals

Butte County contains a network of manmade waterways that transport water through the County for use in irrigation. Western Canal, Cherokee Canal, and Main Drainage Canal are the predominate canals in the County.

Wetlands

Wetlands are regarded as important biological resources, both because of their rarity and because they serve a variety of functional values. Several types of wetlands exist in Butte County, including freshwater marshes, vernal pools, and riparian wetlands.

Vernal Pools

These seasonal wetlands are small depressions that fill with water during the winter, gradually drying during the spring and becoming completely dry in the summer. These pools are found in only a few places in the world outside of California. Vernal pool vegetation is comprised of plant species that begin their growth as aquatic or semi-aquatic plants and transition to a dryland environment as the pool dries. Most vernal pool plants are annual herbs. Special-status species supported by vernal pools in Butte County include vernal pool fairy shrimp (*Branchinecta lynchi*) and the federally and State endangered Butte County meadowfoam (*Limnanthes floccosa ssp. californica*). In addition to vernal pools, several areas within Butte County contain wetlands mapped by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI)(USFWS, 2016c). A general description of each of the classifications is provided below. Of those wetland types mapped by the NWI, freshwater emergent wetland, riverine and lacustrine habitats are also mapped by the CWHR.

Fresh Emergent Wetlands

Fresh emergent wetlands include all non-tidal waters dominated by emergent herbaceous plant species, mosses, and/or lichens. Wetlands of this type are also low in salinity. Wetlands that lack vegetation can be included in this class if they are less than 20 acres, do not have an active wave-formed or bedrock shoreline feature, and have a low water depth less than 6.6 feet. This wetland type is also mapped by the CWHR. Fresh emergent wetlands are characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial monocots. All emergent wetlands are flooded frequently, enough so that the roots of the vegetation prosper in an anaerobic environment. The vegetation may vary in size from small clumps to vast areas covering several kilometers. The acreage of Fresh Emergent Wetlands in California has decreased dramatically since the turn of the century due to drainage and conversion to other uses, primarily agriculture.

Freshwater Forested/Shrub Wetlands

Freshwater Forested/Shrub wetlands include non-tidal waters that are dominated by trees and shrubs, with emergent herbaceous plants, mosses and/or lichens. Wetlands that lack vegetation can be included in this classification if they also exhibit the same criteria as described for freshwater emergent wetlands. The vegetation found in freshwater forested/shrub wetlands is generally dominated by woody vegetation such as shrubs and trees.

Freshwater Ponds

Freshwater ponds include non-tidal waters with vegetative cover along its edges such as trees, shrubs, emergent herbaceous plants, mosses, and/or lichens. Freshwater ponds can be man-made or natural and typically consist of an area of standing water with variable amounts of shoreline. These wetlands and deepwater habitats are dominated by plants that grow on or below the surface of the water. This wetland type is also mapped by the CWHR and categorized as lacustrine habitat that includes vernal pools. Vernal pools predominate in the alluvial valleys and flat volcanic deposits in the western portions of the county, principally on soils underlain by hardpan.

Lakes

Lakes are a lacustrine system that includes wetlands and deepwater habitats that are located in a topographic depression or dammed river channel. These areas tend to be greater than 20 acres. Vegetation cover within this habitat is generally less than 30 percent and often occurs in the form of

emergent or surface vegetation. Substrates are composed of at least 25 percent cover of particles smaller than stones. This wetland type is also mapped by the CWHR and categorized as lacustrine habitat that also includes vernal pool complexes. Prominent reservoirs include Lake Oroville and the Thermalito Forebay and Afterbay.

Riverine

Riverine habitats are systems that include all wetlands and deepwater habitats contained in natural or artificial channels that contain periodically or continuously flowing water. These systems may also form a connecting link between two bodies of standing water. Substrates generally consist of rock, cobble, gravel, or sand. The Sacramento River and its primary tributaries— Feather River, Butte Creek and Big Chico Creek —are the major riverine systems in Butte County.

Watersheds

Big Chico Creek Watershed

Big Chico Creek originates from a series of springs that flow off of the Sierra Mountains to form a main channel near Butte Meadows. This watercourse flows 45 miles from its origin, crossing portions of Butte and Tehama counties, to its confluence with the Sacramento River. The Big Chico Creek watershed also encompasses three smaller drainages to the north: Sycamore, Mud, and Rock Creeks.

Sycamore Creek is a tributary to Mud Creek. Rock Creek originates to the north of Sycamore Creek and drains the north side of Cohasset Ridge, flowing 28 miles before it joins Mud Creek. Mud Creek drains off of Cohasset Ridge to the south, flowing 26 miles to its confluence with Big Chico Creek.

Butte Creek Watershed

Butte Creek originates in the Lassen National Forest at over 7,000 feet. Butte Creek travels through canyons in the northwestern region of Butte County, entering the valley floor near Chico. The northern Sierra Nevada mountain range and southern Cascade mountain ranges make up the mountainous region of the watershed, while a portion of the watershed lies within the Sacramento Valley. Once Butte Creek enters the valley region of the watershed near Chico, it travels approximately 45 miles before it enters the Sacramento River. Levees were constructed along Butte Creek in the 1950's by the USACE. These levees extend for over 14 miles along the Butte Creek channel.

Cherokee Watershed

Cherokee Canal, which was originally constructed to protect agricultural land from mining de bris, now serves as an irrigation drainage canal. Dry Creek becomes Cherokee Canal northeast of Richvale. Gold Run and Cottonwood Creek join the Cherokee Canal upstream of the Richvale Road crossing. Cherokee Canal enters Butte Creek near the southwestern corner of Butte County, south of Highway 162.

Feather River/Lower Honcut Creek Watershed

The Feather River flows through the Oroville Dam southward before merging with the Yuba River at Marysville and Yuba City, and eventually the Sacramento River. Dry Creek is located within the City of Oroville and contains three tributaries that converge within the City of Oroville. Wyman Ravine,

which originates south of the City of Oroville, drains the southern portion of the watershed and flows into Honcut Creek. The north, middle, and south Honcut Creeks drain both the Lake Oroville/Upper Feather River watershed and the Feather River/Lower Honcut Creek watershed. The south fork of Honcut Creek forms the southern border of Butte County.

Lake Oroville/Upper Feather River Watershed

The North Fork of the Feather River originates in northern California in the Lassen Volcanic National Park. It flows south into Lake Oroville, where it joins the south and middle forks of the Feather River. Oroville Dam, constructed in 1968, houses six power generation units and four additional units in the Thermalito Power Plant. The Thermalito Forebay and Afterbay are holding reservoirs, located downstream of Lake Oroville, that allow water released from Lake Oroville to generate power during established peak periods and to be pumped back into the lake during off - peak periods. Other smaller creeks in the watershed flow into Lake Oroville, including Cirby and Concow Creeks, which converge before flowing into the Concow Reservoir.

Little Chico Creek Watershed

Little Chico Creek originates on the northwestern boundary of the Butte Creek watershed and flows through canyons before reaching the City of Chico. Before Little Chico Creek enters the City of Chico urban area, it passes a diversion structure constructed in the 1960's, which is intended to divert high flow from Little Chico Creek into Butte Creek. Little Chico Creek flows through the City of Chico before entering the valley, at which point it disperses through numerous waterways within the region.

Pine Creek Watershed

The Pine Creek watershed is located in the northeastern section of Butte County. Pine Creek, Rock Creek, and Keefer Slough, drain part of the northern region of the Big Chico Creek watershed and eventually drain into the Sacramento River.

Wildlife Movement Corridors

Salmon and Steelhead Trout Fisheries

Salmon and steelhead trout are anadromous fish species that are present in the Bay Delta and San Joaquin and Sacramento River Basins. Anadromous fish are born in freshwater rivers and streams and then migrate to the Pacific Ocean to grow and mature before returning to their place of origin to spawn. The San Joaquin and Sacramento River system produces most of the Chinook salmon and a large percentage of the steelhead trout in California.

Anadromous fish resources once flourished naturally in the San Joaquin and Sacramento River system, but as a result of habitat destruction from water storage and diversion projects, mining, sedimentation, and bank degradation, anadromous fish species populations have steeply declined. The San Joaquin and Sacramento River system has historically supported steelhead trout and four distinct spawning runs of Chinook salmon: fall, late-fall, winter, and spring runs. These salmon runs have declined since the late 1800s and are now characterized as episodic. The Central Valley steelhead was federally listed as threatened in 2003. The fall/late fall run salmon is a federal and state species of concern, and a candidate species for federal listing. The spring-run Chinook salmon population is listed as threatened by both federal and state agencies. Winter-run Chinook salmon population is listed as a federally and state endangered species. Populations of

Central Valley Steelhead and Chinook salmon are supported by hatcheries within the San Joaquin and Sacramento River Basin.

Water remaining behind the dams by the start of the spawning run in October is often warmed by summer heat. Warm water and low water elevation are harmful to most coldwater anadromous fish species. Riparian vegetation is critical for the maintenance of high-quality fish habitat as it provides cover, controls temperature, stabilizes stream banks, provides food, and buffers streams from erosion and impacts of adjacent land uses. Riparian vegetation also affects stream depth, current velocity, and substrate composition. The decline of riparian vegetation communities in California is a factor contributing to the loss of high-quality fish habitat.

Feather River State Hatchery

The Feather River is one of two major tributaries of the Sacramento River. Chinook salmon spawn in ten riffles in the low flow section of the Feather River below Oroville Dam. However, as few as 40 percent of the salmon eggs survive in this reach because there are too many adults spawning this limited area. The Feather River State Hatchery was constructed to mitigate the loss of salmonid habitat attributed to the construction of Oroville Dam; an impassable barrier to anadromous fish.

The Feather River State Hatchery is located in the City of Oroville and operated by the CDFW. This hatchery produced its first fry in 1968. The main hatchery houses the spawning operation and incubators. The facility can accommodate 9,000 adult salmon, 2,000 adult steelhead, 20 million eggs, and 9.6 million fingerlings.

At the base of the fish barrier dam, salmon and steelhead enter and climb the ladder to the hatchery gathering tank. During their spawning runs, the fish can be seen through special viewing windows as they climb the fish ladder to reach the hatchery. Spring-run salmon begin arriving in June, while steelhead and fall-run salmon arrive from September through November. Eggs are taken from the fish and fertilized, incubated, and hatched. The small fish, called fry, are transferred to rearing tanks where they are kept until large enough to put into the river. From the river, they move to the ocean and then later migrate back to their birth waters.

Butte Creek

Butte Creek supports the largest remaining wild spring-run Chinook salmon in California. This creek and its tributaries also support small populations of steelhead trout and late fall-run Chinook salmon. The fisheries in Butte Creek have several known problems including inadequate fish passage over diversion dams, unblocked drains that attract and strand fish, and poor water quality. Temperatures in the Upper Butte Creek are at the upper limit of salmonid tolerance, which can result in mortality of over-summering adults.

Big Chico Creek

Fall-run Chinook salmon have historically been the most abundant salmonid species present in Big Chico Creek, but have since declined and are rarely observed. Big Chico Creek also supports small, non-sustaining populations of spring-run Chinook salmon, as well as small populations of steelhead trout and late fall-run salmon.

The decline of salmon and steelhead populations has been attributed to limited access to the upper watershed. Access is limited by intermittent flows in Lindo Channel, poor fish passage at the One Mile Recreation Area of Bidwell Park, and inadequate fish passage at the Five Mile Diversion Dam and Iron Canyon.

Migratory Deer

Deer species present in Butte County include both resident and migratory populations. Although Columbian black-tailed deer (*Odocoileus hemionus columbianus*) is not recognized as a special-status species, preserving deer habitat and migration corridors is of concern to the CDFW in many foothill and mountainous regions of California currently experiencing urbanization.

In 1983, the Butte County Board of Supervisors created the Butte County Deer Herd Study Panel to study ways to maintain herd populations and to reduce the impacts of development on migratory deer. The goals of the Study Panel were to identify important migratory deer habitats, protect migratory deer from adverse impacts from development, and to develop policies and implementation measures that would protect deer herds.

As part of the Butte County General Plan 2040 planning process, the Study Panel, in coordination with the CDFW, developed overlay maps that illustrate summer and winter ranges and migration corridors, General Plan land uses, parcel sizes, transportation corridors, and suitable development sites. The CDFW is responsible for identifying impacted deer winter range where development may continue with mitigation measures, deer winter range in need of protection, and mitigation measures to offset loss of habitat.

Deer populations migrate to lower elevations during the winter in response to the lack of food at higher elevations during months when snow is abundant. Most of the deer habitat in Butte County is winter range, which extends from the valley floor to nearly 4,000 feet. The critical winter range generally extends from 1,000 to 3,000 feet.

Deer migration occurs a result of annual weather patterns. The first winter storms of the year will initiate herd migrations to a lower elevations. The herds will generally hold as high as possible until the first major snowstorm forces the deer to migrate lower. The deer migration reverses in late winter to early spring when weather conditions begin to warm and the snow begins to melt at higher elevations.

Three separate migratory deer herds, East Tehama, Bucks Mountain, and Mooretown, occupy the eastern foothills and mountains in Butte County and depend on these areas for all or part of their habitat requirements. Deer that remain in a restricted area on a year-round basis are considered resident populations. Resident deer herds that occur within the county include the Camp Beale and Sacramento Valley herds. Resident deer herds share the winter ranges with all of the migratory herd populations.

Eastern Tehama Deer Herd

The Eastern Tehama deer herd is the largest migratory deer herd in the county and is considered the most extensive range in the state. The range includes portions of Tehama, Plumas, Lassen, Shasta, and Butte counties. Winter range is approximately 520,000 acres; migratory and summer ranges total approximately 920,000 acres and migration routes to and from seasonal ranges are the longest in the state, covering a distance of 50 to 100 miles. Approximately 40 percent of the critical winter range for the Eastern Tehama deer herd in Butte County has been severely impacted due to residential encroachment since the mid 1960s.

Bucks Mountain Deer Herd

The Bucks Mountain deer herd range extends from eastern Butte County to western Plumas County. The winter range includes approximately 200,000 acres and the migratory/summer ranges

include approximately 265,000 acres. An estimated 28 percent of the critical winter range for the Bucks Mountain deer herd in Butte County has been lost to residential encroachment since the mid 1960s.

Mooretown Deer Herd

The Mooretown deer herd occupies a range extending from the southern boundary of the Bucks Mountain deer herd into northwestern Sierra and northeastern Yuba counties. The winter range includes approximately 232,000 acres and the migratory and summer ranges include approximately 217,000 acres. An estimated 50 percent of the critical winter range for the Mooretown deer herd in Butte County has been lost to residential encroachment since the mid 1960s.

Special Status Species and Sensitive Communities

Table 1 Special-Status Plant Species Known to Occur or with Potential to Occur within Butte County

Scientific Name Common Name	Status Fed/State ESA Global Rank/ State Rank CRPR	Habitat Requirements
Clarkia mildrediae ssp. mildrediae Mildred's clarkia	FS/— G3T3/S3 1B.3	BP: May – August. Cismontane woodland and lower montane coniferous forest.
Agrostis hendersonii Henderson's bent grass	—/— G2Q/S2 3.2	Blooming Period (BP): April – May. Occurs in mesic valley/foothill grassland and vernal pools.
Allium jepsonii Jepson's onion	FS/— G2/S2 1B.2	BP: April – August. Cismontane woodland, lower montane coniferous forest, and chaparral.
Astragalus tener var. ferrisiae Ferris' milk-vetch	FS/— G2T1/S1 1B.1	BP: April - May. Meadows, seeps, valley and foothill grassland, and wetlands.
Atriplex cordulata var. cordulata Heartscale	FS/— G3T2/S2 1B.2	BP: April - October. Chenopod scrub, meadows, seeps, and valley and foothill grasslands.
Atriplex minuscula Lesser saltscale	—/— G2/S2 1B.1	BP: May – October. Alkali playa, chenopod scrub, valley and foothill grasslands.
Atriplex subtilis Subtle orache	FS/— G1/S1 1B.2	BP: June - October. Valley and foothill grasslands.

Scientific Name Common Name	Status Fed/State ESA Global Rank/ State Rank CRPR	Habitat Requirements
Balsamorhiza macrolepis Big-scale balsamroot	FS/— G2/S2 1B.2	BP: March - June. Cismontane woodland, chaparral, valley and foothill grasslands.
Betula glandulosa Dwarf resin birch	—/— G5/S2 2B.2	BP: May –June. Occurs almost always under natural conditions in wetlands.
Botrychium ascendens Upswept moonwort	FS/— G3/S2 2B.3	BP: July - August. Lower montane coniferous forest.
Botrychium crenulatum Scalloped moonwort	FS/— G3/S2 2B.2	BP: June - September. Bog and fen, lower montane coniferous forest, marshes and swamps, meadows, seeps, and wetlands.
Botrychium montanum Western goblin	FS/— G3/S2 2B.1	BP: July - September. Lower montane coniferous forest, meadows, seeps, and upper montane coniferous forests.
Brasenia schreberi Watershield	—/— G5/S3 2B.3	BP: June - September. Marshes, swamps, and wetlands.
Calochortus syntrophus Callahan's mariposa-lily	—/— G2/S1 1B.1	BP: May - June. Cismontane woodland, valley and foothill grasslands.
Calycadenia spicata spicate calycadenia	—/— G3/S3 1B.3	BP: May - September. Cismontane woodland, valley and foothill grasslands.
Cardamine pachystigma var. dissectifolia Dissected-leaved toothwort	—/— G3G5T2Q/S2 1B.2	BP: February – May. Chaparral, lower montane coniferous forest usually serpentinite, rocky.
Carex comosa bristly sedge	—/— G5/S2 2B.1	BP: May – September. Coastal prairie Marshes and swamps (lake margins) Valley and foothill grassland

Scientific Name Common Name	Status Fed/State ESA Global Rank/ State Rank CRPR	Habitat Requirements
Cares cyrtostachya Sierra arching sedge	—/— G2/S2 1B.2	BP: May – August. Lower montane coniferous forest (mesic), meadows and seeps, marshes and swamps, and riparian forest (margins).
Carex davyi Davy's sedge	—/— G3/S3 1B.3	BP: May – August. Subalpine coniferous forest, upper montane coniferous forest
Carex limosa Mud sedge	—/— G5/S3 2B.2	BP: June – August. Bog and fen, freshwater marsh, lower montane coniferous forest, swamps, meadow and seep, upper montane coniferous forest, and wetlands.
Carex xerophila chaparral sedge	—/— G2/S2 1B.2	BP: March – June. Chaparral Cismontane woodland Lower montane coniferous forest.
Castilleja rubicundula ssp. rubicundula Pink creamsacs	FS/— G5T2/S2 1B.2	BP: May – August. Chaparral, meadow and seep, chaparral, valley and foothill grasslands.
Centromadia parryi ssp. parryi Pappose tarplant	FS/— G3T2/S2 1B.2	BP: May – November. Chaparral, coastal prairie, meadows and seeps, marshes and swamps (coastal salt), valley and foothill grassland (vernally mesic).
Clarkia gracilis ssp. albicaulis White-stemmed clarkia	FS/— G5T3/S2 1B.2	BP: May – July. Chaparral and cismontane woodland.
Clarkia mosquinii Mosquin's clarkia	FS/— G2/S2 1B.1	BP: May – September. Cismontane woodland and lower montane coniferous forest.
Delphinium recurvatum Recurved larkspur	FS/— G2/S2 1B.2	BP: March – June. Chenopod scrub, cismontane woodland, valley and foothill grassland.
Drosera anglica English sundew	—/— G5/S2 2B.3	BP: July – October. Marshes and swamps (freshwater).
Eremogone cliftonii Clifton's eremogone	FS/— G3/S3 1B.3	BP: April – September. Chaparral, lower montane coniferous forest and upper montane coniferous forest.

Scientific Name Common Name	Status Fed/State ESA Global Rank/ State Rank CRPR	Habitat Requirements
Eriogonum umbellatum var. ahartii Ahart's buckwheat	FS/— G5T3/S3 1B.2	BP: June - September. Cismontane woodland and chaparral.
Erythranthe filicifolia fern-leaved flower	—/— G2/S2 1B.2	BP: April – June. Chaparral, lower montane coniferous forest meadows and seeps (ephemeral)
Euphorbia hooveri Hoover's spurge	FT/— G1/S1 1B.2	BP: July - October. Valley and foothill grassland, vernal pools and wetlands.
Fissidens pauperculus Minute pocket moss	FS/— G3/S2 1B.2	BP: N/A (moss). Coniferous forests and clay soils along stream banks.
Frangula purshiana ssp. ultramafica Caribou coffeeberry	FS/— G4T2T3/S2T3 1B.2	BP: May-July. Chaparral, lower montane coniferous forest, meadows and seeps, upper montane coniferous forest
Fritillaria eastwoodiae Butte County fritillary	FS/— G3Q/S3 3.2	BP: March - June. Chaparral, cismontane woodland, and lower montane coniferous forest.
Fritillaria pluriflora Adobe-lily	FS/— G2G3/S2S3 1B.2	BP: February - April. Chaparral, cismontane woodland, valley and foothill grassland.
Heteranthera dubia Water star-grass	—/— G5/S1 2B.2	BP: July – October. Requires a pH of 7 or higher, usually in slightly eutrophic waters. Marshes and swamps (alkaline, still or slow-moving water).
Hibiscus lasiocarpos var. occidentalis Woolly rose-mallow	—/— G5T3/S3 1B.2	BP: June - September. Freshwater marsh, swamps, and wetlands.
Imperata brevifolia California satintail	—/— G3/S3 2B.1	BP: September - May. Chaparral, coastal scrub, meadow and seep, mojavean desert scrub, riparian forest and wetlands.
Juncus leiospermus var. ahartii	—/— G2T1/S1	BP: March - May. Vernal pools and wetlands.

Scientific Name Common Name	Status Fed/State ESA Global Rank/ State Rank CRPR	Habitat Requirements
Ahart's dwarf rush	1B.2	
Juncus leiospermus var. leiospermus Red Bluff dwarf rush	FS/— G2T2/S2 1B.1	BP: March - June. Chaparral, cismontane woodland valley and foothill grassland, vernal pool and wetlands.
Layia septentrionalis Colusa layia	FS/— G2/S2 1B.2	BP: April - March. Chaparral, cismontane woodland valley and foothill grassland.
Lewisia cantelovii Cantelow's lewisia	FS/— G3/S3 1B.2	BP: May - October. Broadleaved upland forest, chaparral, cismontane woodland, and lower montane coniferous forest.
Lewisia cantelovii Hutchison's lewisia	FS/— G3G4T3Q/S3 3.2	BP: April – August. Upper montane coniferous forest, openings, ridge tops.
Limnanthes floccosa ssp. californica Butte County meadowfoam	FE/SE G4T1/S1 1B.1	BP: March - May. Valley and foothill grassland, vernal pool and wetlands.
Meesia uliginosa *broad-nerved hump moss*	—/— G5/S3 2B.2	BP: N/A (moss). Bogs and fens, meadows and seeps, subalpine coniferous forest, upper montane coniferous forest.
Monardella venosa Veiny monardella	—/— G1/S1 1B.1	BP: May - July. Cismontane woodland, valley and foothill grasslands.
Orcuttia pilosa Hairy Orcutt grass	FE/SE G1/S1 1B.1	BP: May - September. Vernal pools and wetlands.
Orcuttia tenuis Slender Orcutt grass	FT/SE G2/S2 1B.1	BP: May - October. Valley and foothill grassland, vernal pools and wetlands.

Scientific Name Common Name	Status Fed/State ESA Global Rank/ State Rank CRPR	Habitat Requirements
Packera eurycephala var. lewisrosei Lewis Rose's ragwort	FS/— G4T2/S2 1B.1	BP: March - September. Chaparral, cismontane woodland, and lower montane coniferous forest.
Packera eurycephala var. lewisrosei Lewis Rose's ragwort	FS/— G4T2/S2 1B.2	BP: March - September. Chaparral, cismontane woodland, and lower montane coniferous forest.
Paronychia ahartii Ahart's paronychia	FS/— G3/S3 1B.1	BP: February - June. Cismontane woodland, valley and foothill grassland, vernal pools and wetlands.
Penstemon personatus Closed-throated beardtongue	FS/— G2/S2 1B.2	BP: June - October. Chaparral, lower montane coniferous forest and upper montane coniferous forest.
Poa sierra Sierra blue grass	FS/— G3/S3 1B.3	BP: April - June. Lower montane coniferous forest.
Puccinellia simplex California alkali grass	FS/— G2/S2 1B.2	BP: March – May. Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools.
Rhamnus alnifolia Alder -rushorn	—/— G5/S3 2B.2	BP: May – July. Lower montane coniferous forest, meadows and seeps, riparian scrub, upper montane coniferous forest.
Rhynchospora californica California beaked-rush	—/— G1/S1 1B.1	BP: March - May. Freshwater marsh, marshes and swamps, meadows, seeps and wetlands.
Rhynchospora capitellata Brownish beaked-rush	—/— G5/S1 2B.2	BP: July - August. Lower montane coniferous forest, marshes and swamps, meadows, seeps, upper montane coniferous forest and wetlands.
Rupertia hallii Hall's rupertia	FS/— G2G3/S2S3 1B.2	BP: June - September. Cismontane woodland and lower montane coniferous forest.
Sagittaria sanfordii Sanford's arrowhead	FS/— G3/S3 1B.2	BP: May - November. Marshes, swamps and wetlands.

Scientific Name Common Name	Status Fed/State ESA Global Rank/ State Rank CRPR	Habitat Requirements
Schoenoplectus subterminalis Water bulrush	—/— G5/S3 2B.3	BP: June - September. Marshes, swamps and wetlands.
Scytinium siskiyouense Siskiyou jellyskin lichen	—/— G2G3/S1S3 1B.1	BP: N/A (lichen). Lower montane coniferous forest, North Coast coniferous forest
Sedum albomarginatum Feather River stonecrop	FS/— G2/S2 1B.2	BP: May - June. Chaparral and lower montane coniferous forest.
Sidalcea robusta Butte County checkerbloom	FS/— G2/S2 1B.2	BP: April - June. Chaparral and cismontane woodlands.
Silene occidentalis ssp. Longistipitata Long-stiped campion	FS/— G4T2Q/S2 1B.2	BP: June – August. Chaparral, lower montane coniferous forest and upper montane coniferous forest.
Stellaria longifolia Long-leaved starwort	—/— G5/S2 2B.2	BP: May - August. Meadows, seeps, riparian woodlands and wetlands.
Stuckenia filiformis ssp. alpina Northern slender pondweed	—/— G5T5/S2S3 2B.2	BP: May - July. Meadows, seeps, and wetlands.
Trichodon cylindricus Cylindrical trichodon	—/— G4G5/S2 2B.2	BP: N/A (moss). Broadleafed upland forest, meadows and seeps, upper montane coniferous forest
Trifolium jokerstii Butte County golden clover	FS/— G2/S2 1B.2	BP: March - May. Valley and foothill grassland, vernal pools and wetlands.
Tuctoria greenei Greene's tuctoria	FE/SR G1/S1 1B.1	BP: May - September. Valley and foothill grassland, vernal pools and wetlands.

Scientific Name Common Name	Status Fed/State ESA Global Rank/ State Rank CRPR	Habitat Requirements
Utricularia intermedia Flat-leaved bladderwort	—/— G5/S3 2B.2	BP: July - August. Bog, fen, marsh, swamp, meadow, seep and wetlands.
Vaccinium coccineum Siskiyou Mountains huckleberry	—/— G3Q/S3 3.3	BP: June - August. Lower montane coniferous forest, upper montane coniferous forest
Wolffia brasiliensis Brazilian watermeal	—/— G5/S1 2B.3	BP: April - December. Marshes, swamps and wetlands.
Erythranthe filicifolia fern-leaved monkeyflower	—/— G2/S2 1B.2	BP: April - June. Chaparral, lower montane coniferous forest, meadows and seeps (ephemeral)
Oreostemma elatum tall alpine-aster	FS/— G2/S2 1B.2	BP: June - August. Bogs and fens, meadows and seeps, upper montane coniferous forest

Sources: USFWS IPaC (Butte County, 2016), CNDDB Rarefind v5 (Butte County, 2016),and CNPS (Butte County, 2016)

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FT = Federally Threatened
FC = Federal Candidate Species
FS = Federally Sensitive (BLM, USFS)

SE = State Endangered
ST = State Threatened
SC = State Candidate Species
SS = State Sensitive (CDF)
SSC = State Species of Special Concern
FP = Fully Protected

CRPR 1B = Rare or Endangered in California or elsewhere
CRPR 2 = Rare or Endangered in California, more common elsewhere
CRPR 3 = More information is needed
0.1 =Seriously Threatened
0.2 = Fairly Threatened
0.3 = Not very Threatened
G-Rank/S-Rank = Global Rank and State Rank as per CNDDB RareFind 5.

Table 2 Special-Status Animal Species Known to Occur or with Potential to Occur within Butte County

Scientific Name Common Name	Status Fed/State Global Rank/ State Rank CDFW	Habitat Requirements
Mammals		
Antrozous pallidus Pallid bat	FS/— G5/S3 SSC	Deserts, grasslands, shrublands, woodlands, and forest. Most common in open, dry, habitats with rocky area for roosting. Roost must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.
Aplodontia rufa californica Sierra Nevada mountain beaver	—/— G5T3T4/S2S3 SSC	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.
Corynorhinus townsendii Townsend's big-eared bat	FS/SC G3G4/S2S3 SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.
Eumops perotis Western mastiff bat	FS/— G4G5T4/S3S4 SSC	Many open habitats, including conifer and deciduous woodlands, grassland, and chaparral. Roosts in crevices in cliff faces and high buildings.
Lasiurus blossevillii Western red bat	FS/— G5/S3 SSC	Occupies cismontane woodland, lower montane coniferous forest, riparian forests and riparian woodlands. Roosts primarily in broadleafed trees.
Myotis evotis Long-eared myotis	FS/— G5/S3 —	Found in all brush, woodland & forest habitats from sea level to about 9000 feet. Prefers coniferous woodlands & forests. Nursery colonies in buildings, crevices, spaces under bark, & snags. Caves used primarily as night roosts.
Myotis thysanodes Fringed myotis	FS/— 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.
Myotis yumanensis Yuma myotis	FS/— 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.
Pekania pennanti Fisher – West Coast DPS	FC(FT),FS/— G5T2T3Q/S2S3 SSC	Intermediate to large-tree stages of coniferous forests & deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs & rocky areas for cover & denning. Needs large areas of mature, dense forest.
Taxidea taxus American badger	—/— G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents.

Scientific Name Common Name	Status Fed/State Global Rank/ State Rank CDFW	Habitat Requirements
Vulpes vulpes necator Sierra Nevada red fox	FS/ST G5T1T2/S1 —	Restricted to alpine and subalpine habitats of the Sierra Nevada, above 4500 feet elevation. Lassen Volcanic National Park is the major population center for the subspecies.
Birds		
Accipiter gentilis Northern goshawk	FS/SS 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.
Agelaius tricolor Tricolored blackbird	FS/ST G1G2/S2 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 miles of the colony.
Aquila chrysaetos Golden eagle	FS/— G5/S3 FP	Rolling foothills, mountain areas, sage-juniper flats, & desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.
Antigone canadensis tabida Greater sandhill crane	_/ST G5T5/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.
Asio flammeus Short-eared owl	—/— G5/S3 SSC	Open, treeless areas with elevated sites for perches and dense vegetation for roosting and nesting.
Asio otus Long-eared owl	—/— 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.
Athene cunicularia hypugaea Western burrowing owl	—/— G4/S2 SSC	Grasslands and ruderal habitats where ground squirrel burrows are available for nesting.
Buteo swainsoni Swainson's hawk	FS/ST G5/S3 —	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.
Circus cyaneus Northern harrier	—/— G5/S3 SSC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.

Scientific Name Common Name	Status Fed/State Global Rank/ State Rank CDFW	Habitat Requirements
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FS,FT/SE 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.
Cypseloides niger Black swift	—/— G4/S2 SSC	Breeding habitat is associated with water. Most often nests on high cliff faces, either above the ocean surf or behind or next to waterfalls.
Dendroica petechia Yellow warbler	—/— G5/S3S4 SSC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.
Elanus leucurus White-tailed kite	—/— G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes often next to deciduous woodlands
Empidonax traillii Willow flycatcher	FS/SE G5/S1S2 —	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters.
Falco peregrinus anatum American peregrine falcon	—/SS 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.
Grus Canadensis tabida Greater sandhill crane	FS/ST G5T4/S2 FP	Found in fresh emergent wetlands and wet meadows. 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.
Haliaeetus leucocephalus Bald eagle	FS/SE,SS G5/S2 —	Ocean shore, lake margins, & rivers for both nesting & 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.
Icteria virens Yellow-breasted chat	—/— G5/S3 SSC	Breeds in riparian habitats having dense understory vegetation, such as willow and blackberry.
Ixobrychus exilis Least bittern	—/— G5/S2 SSC	Colonial nester in marshlands and borders of ponds and reservoirs which provide ample cover. Nests usually placed low in tules, over water.
Lanius ludovicianus Loggerhead shrike	—/— G4/S4 SSC	Forages in open grassland habitats throughout the Central Valley of California. Nests in shrubs and trees.
Latterallus jamaicensis coturniculus California black rail	FS/ST G3G4T1/S1 SSC,FP	Densely vegetated wetlands and marshes with a perennial water source. Needs water depths of about 1 inch that do not fluctuate during the year & dense vegetation for nesting habitat.

Scientific Name Common Name	Status Fed/State Global Rank/ State Rank CDFW	Habitat Requirements
Riparia riparia Bank swallow	FS/ST 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.
Strix occidentalis occidentalis California spotted owl	FS/— G3T3/S3 SSC	Mixed conifer forest, often with an understory of black oaks & other deciduous hardwoods. Most often found in deep-shaded canyons, on north-facing slopes, and within 300 meters of water.
Reptiles		
Emys marmorata Western pond turtle	FS FC/— G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, below 6000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometers from water for egg laying.
Phrynosoma blainvillii Blainville's horned lizard	FS/— G3G4/S3S4 SSC	Occurs in sandy soils in valley foothill hardwood, coniferous, and riparian habitats, as well as pine-cypress, juniper, and annual grassland habitats (sea level - 8,000 ft elevation).
Thamnophis gigas Giant garter snake	FT/ST G2/S2 —	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes ponds, sloughs, small lakes, and there associated uplands (sea level - 400 ft elevation).
Amphibians		
Rana aurora draytonii California red-legged frog	FT/— G2G3/S2S3 SSC	Semi-permanent or permanent water at least 2 feet deep, bordered by emergent or riparian vegetation, and upland grassland, forest or scrub habitats for refugia and dispersal.
Rana boylii Foothill yellow-legged frog – Feather River DPS	FT/ST G3T2/S3	Partly shaded, shallow streams & riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg laying. Need at least 15 weeks to attain metamorphosis.
Rana boylii Foothill yellow-legged frog – North Coast DPS	—/— G3T4/S3 SSC	Partly shaded, shallow streams & riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg laying. Need at least 15 weeks to attain metamorphosis.
Rana cascadae Cascades frog	FS/SC G3G4/S3 SSC	Found throughout the Cascade Range in streams, lakes, and associated riparian habitat between 2,250 and 8,000 feet elevation.
Rana sierrae Sierra Nevada yellow-legged frog	FE/ST G1/S1	Rocky streams within canyons, slow moving waters, alpine ponds, lakes and meadow streams (1,000 - over 12,000 ft elevation).

Scientific Name Common Name	Status Fed/State Global Rank/ State Rank CDFW	Habitat Requirements
Spea hammondii Western spadefoot toad	FS FC/— G2G3/S3S4 SSC	Grasslands and, occasionally, valley-foothill hardwood woodlands; vernal pools or similar ephemeral pools required for breeding.
Fish		
Acipenser medirostris Green sturgeon – Southern DPS	FT/— G2T1/S3 SSC	This DPS includes green sturgeon that spawn in rivers south of the Eel River, including the Sacramento River. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.
Mylopharodon conocephalus Hardhead	—/— G3/S3 SSC	Found in both small to large streams in low to mid-elevations in the Sacramento, San Joaquin, and Klamath rivers and their tributaries.
Oncorhynchus mykiss irideus Steelhead – Central Valley DPS	FT/— 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.
Oncorhynchus tshawytscha Chinook salmon – Sacramento River winter-run ESU	FE/SE G5T2Q/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.
Oncorhynchus tshawytscha Chinook salmon – Central Valley spring-run ESU	FT/ST 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.
Oncorhynchus tshawytscha Chinook salmon – Central Valley fall/late fall-run ESU	—/— G5/S2 SSC	Spawn and rear in main-stem Sacramento River and suitable perennial tributaries. Requires cool water temperatures for spawning, egg-incubation and juvenile rearing. Spawn in riffles with gravel and cobble.
Pogonichthys macrolepidotus Sacramento splittail	—/— G3/S3 SSC	Shallow, dead-end sloughs with submerged vegetation.
Invertebrates		
Branchinecta conservation Conservancy fairy shrimp	FE/— G1/S1 —	Valley and foothill grassland, vernal pools and wetlands.
Branchinecta lynchi Vernal pool fairy shrimp	FT/— G3/S3 —	Lives in vernal pools, swales, and ephemeral freshwater habitats.

Scientific Name Common Name	Status Fed/State Global Rank/ State Rank CDFW	Habitat Requirements
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/— G3/S2 — —	Elderberry shrubs associated with riparian forests that occur along rivers and streams in the Sacramento Valley and foothills.
Lepidurus packardi Vernal pool tadpole shrimp	FE/— G3/S2S3 —	Lives in vernal pools, swales, and ephemeral freshwater habitats.
Bombus occidentalis Western bumble bee	FS/SC(SE) G3/S1	Generalist foragers that require plants that bloom and provide adequate nectar and pollen throughout the colony's flight period from as early as February to late November. Nesting habitat is typically underground, such as in old animal burrows.
Bombus crotchii Crotch bumble bee	—/SC(SE) G2/S1S2	Native grasslands and shrublands featuring antirrhinum, phacelia, clarkia, dendromecon, eschscholzia, and eriogonum
Danaus plexippus Monarch Butterfly	FC/— G4/—	Egg and larval stage dependent upon milkweed. Adults migrate seasonally, amassing in in dense tree canopies; e.g., eucalyptus.

Sources: USFWS IPaC (2024), CNDDB Rarefind v5 (2024), and CNPS (2024)

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Local Jurisdictions General Plan Goals and Policies

Table 3 Local General Plan Goals, Objectives, Policies, Actions and Implementation Measures

Butte County	
Goal COS-6	Engage in cooperative planning efforts to protect biological resources
Policy COS-P6.1	The County shall coordinate with applicable federal, State, regional and local agencies on natural resources and habitat planning.
Action COS-A6.1	Continue to work with the Butte County Association of Governments and the five municipalities to develop and implement the Butte Regional Habitat Conservation Plan and Natural Community Conservation Plan, and subsequently update it as necessary.
Action COS-A6.2	Work with Butte Creek Canyon residents and local groups toward adopting a planning strategy for a Butte Creek Canyon overlay. The purpose of the planning strategy is to facilitate the protection and preservation of the historical and ecological foundation of Butte Creek Canyon, including the survival of salmon, steelhead and other sensitive plants and animals such as the East Tehama Deer Herd, preservation of historical sites and ecological preserves, and the optimum balance of recreation and residential use.
Goal COS-7	Conserve and enhance habitat for protected species and sensitive biological communities.
Policy COS-P7.1	Conservation easements that protect habitat areas, habitat corridors and sensitive biological resources shall be promoted.
Policy COS-P7.2	Development patterns shall be encouraged to conserve habitat for protected species and biological resources.
Policy COS-P7.3	Creeks shall be maintained in their natural state whenever possible, and creeks and floodways shall be allowed to function as natural flood protection features during storms.*
Policy COS-P7.4	New development projects shall mitigate their impacts in habitat areas for protected species through on- or off-site habitat restoration, clustering of development, and/or project design and through the provisions of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) within the HCP/NCCP Planning Area, upon the future adoption of the HCP/NCCP.*
Policy COS-P7.5	No new development projects shall occur in wetlands or within significant riparian habitats, except within the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) Planning Area where such development is consistent with the conditions of the HCP/NCCP, upon the future adoption of the HCP/NCCP.*
Policy COS-P7.6	New development projects shall include setbacks and buffers along riparian corridors and adjacent to habitat for protected species, except where permitted in the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) Planning Area and where such development is consistent with the conditions of the HCP/NCCP, upon the future adoption of the HCP/NCCP.*
Policy COS-P7.7	Construction barrier fencing shall be installed around sensitive resources on or adjacent to construction sites. Fencing shall be installed prior to construction activities and maintained throughout the construction period.*
Policy COS-P7.8	Where sensitive on-site biological resources have been identified, construction employees operating equipment or engaged in any development-associated activities involving vegetation removal or ground disturbing activities in sensitive resource areas shall be trained by a qualified biologist and/or botanist who will provide information on the on-site biological resources (sensitive natural communities, special status plant and wildlife habitats, nests of special-status birds, etc.), avoidance of invasive plant introduction and spread, and the penalties for not complying with biological mitigation requirements and other State and federal regulations.*
Policy COS-P7.9	A biologist shall be retained to conduct construction monitoring in and adjacent to all habitats for protected species when construction is taking place near such habitat areas.*

Policy COS-P7.10	Long-term recovery plans for areas affected by wildfire shall incorporate native species and enhance wildlife habitat.
Policy COS-P7.11	The County shall work with the military to ensure that land uses under the Military Operations Areas (MOAs) encourage the fulfillment of the County's biological resource protection goals.
Action COS-A7.1	Develop a set of guidelines for evaluating development project impacts to habitat in locations outside of the approved Butte Regional Conservation Plan Planning Area, as well as for requiring specific mitigations for impacts that are identified.
Action COS-A7.2	Establish a mitigation bank program for impacts to habitats for protected species, such as oak woodlands, riparian woodlands, and wetlands, in locations outside of the approved Butte Regional Conservation Plan Planning Area, using mitigation fees on new development projects as a funding mechanism.
Action COS-A7.3	Seek funding to conduct a study to develop an approach to protecting significant specimen trees and tree groves.
Goal COS-8	Maintain and promote native vegetation
Policy COS-P8.1	Native plant species shall be protected, and planting and regeneration of native plant species shall be encouraged, wherever possible, in undisturbed portions of development sites.
Policy COS-P8.2	New landscaping shall promote the use of xeriscape and native tree and plant species, including those valued for traditional Native American cultural uses.
Policy COS-P8.3	Native plants shall be used wherever possible on County owned and -controlled property.
Policy COS-P8.4	Introduction or spread of invasive plant species during construction of development projects shall be avoided by minimizing surface disturbance; seeding and mulching disturbed areas with certified weed-free native mixes; and using native, noninvasive species in erosion control plantings.*
Goal COS-9	Protect identified special-status plant and animal species.
Policy COS-P9.1	A biological resources assessment shall be required for any proposed development project where special-status species or critical habitat may be present. Assessments shall be carried out under the direction of Butte County. Additional focused surveys shall be conducted during the appropriate season if necessary. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), assessment requirements of the HCP/NCCP shall be implemented for development projects within the HCP/NCCP area.*
Policy COS-P9.2	If special-status plant or animal species are found to be located within a development site, proponents of the project shall engage in consultation with the appropriate federal, State, and regional agencies and mitigate project impacts in accordance with State and federal law. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), mitigation requirements of the HCP/NCCP shall be implemented for development projects within the HCP/NCCP area. Examples of mitigation may include:* a. Design the proposed project to avoid and minimize impacts. b. Restrict construction to specific seasons based on project specific special-status species issues (e.g., minimizing impacts to special-status nesting birds by constructing outside of the nesting season). c. Confine construction disturbance to the minimum area necessary to complete the work. d. Mitigate for the loss of special-status species by purchasing credits at an approved conservation bank (if a bank exists for the species in question), funding restoration or habitat improvement projects at existing preserves in Butte County or purchasing or donating mitigation lands of substantially similar habitat. e. Maintain a minimum 100-foot buffer on each side of all riparian corridors, creeks and streams for special-status and common wildlife. f. Establish setbacks from the outer edge of special-status species habitat areas. g. Construct barriers to prevent compaction damage by foot or vehicular traffic.
Goal COS-10	Facilitate the survival of deer herds in winter and critical winter migratory deer herd ranges.

Policy COS-P10.1	Development projects that are designed to accommodate herd migration patterns shall be allowed and encouraged, with remaining areas protected under conservation easements, within the Winter and Critical Winter Deer Herd Migration Area Overlays to protect migratory deer herd ranges.
Action COS-A10.1	Coordinate with the California Department of Fish and Game to monitor the effects of development on migratory deer herds.
Action COS-A10.2	Seek funding for and conduct more detailed studies about deer herd migration and use those studies to update the Deer Herd Migration Area Overlay if needed.
City of Chico	
Goal OS-1	Protect and conserve native species and habitats. •
Policy OS-1.1	Preserve native species and habitat through land use planning, cooperation, and collaboration.
Action OS-1.1.1	Direct development to appropriate locations consistent with the Land Use Diagram, and protect and preserve areas designated Open Space and areas that contain sensitive habitat and species.
Action OS-1.1.2	Actively participate in regional conservation planning efforts, in particular the Butte County Habitat Conservation Plan process, sponsored by the Butte County Association of Governments, which seeks the preservation of habitat areas needed for the ongoing viability of native species.
Action OS-1.1.3	In support of AB 32, work with the Butte County Association of Governments to implement the Sustainable Community Strategy (SB 375), which directs smart-growth development to urbanized areas.
Action OS-1.1.4	Consult with conservation groups to identify sites and projects for fund-raising and volunteer participation in public education, enhancement, maintenance, and protection of natural resources within the City's Sphere of Influence.
Action OS-1.1.5	Prioritize efforts to remove nonnative species within Bidwell Park and other City greenways, and condition new development adjacent to Bidwell Park and greenways to protect native species and habitat from the introduction of invasive species.
Policy OS-1.2	Protect special-status plant and animal species, including their habitats, in compliance with all applicable state, federal and other laws and regulations.
Action OS-1.2.1–	Ensure that project-related biological impacts are considered and mitigated, and require applicants to obtain all necessary local, state and federal permits for projects that may affect special status species or their habitat.
Policy OS-1.3	Reduce excessive nighttime light and glare.
Action OS-1.3.1	Consider adoption of a Dark Sky ordinance.
Action OS-1.3.2	Seek community cooperation to reduce existing light pollution.
Goal OS-2:	Connect the community with a network of protected and maintained open space and creekside greenways to build knowledge and appreciation of these resources.
Policy OS-2.1	Continue acquisition, management, and maintenance of open space to protect habitat and promote public access.
Action OS-2.1.1	Develop and adopt an Open Space and Greenways Master Plan that catalogues the City's open space land holdings, ensures that management and maintenance programs are in place, identifies longterm funding, coordinates with other public and private open space holdings, and prioritizes additional open space acquisitions, dedications, and easements to enhance connectivity, protect resources, and facilitate public access and circulation.

Action OS-2.1.2	Pursue outside funding sources for open space acquisition, management, maintenance, and restoration.
Policy OS-2.2	Expand creekside greenway areas for open space and additional pedestrian/bicycle routes.
Action OS-2.2.1	Continue collecting fees for creekside greenway acquisition, and purchase properties as opportunities arise.
Action OS-2.2.2	Seek easements and dedications along the City's creeks to expand the greenway system.
Policy OS-2.3	Support public access to publicly held foothill areas for non-intensive recreational purposes, where appropriate.
Policy OS-2.4	Preserve the foothills as a natural backdrop to the urban form.
Action OS-2.4.1	Require visual simulations for foothill development to assess viewshed impacts.
Action OS-2.4.2	Update City's Design Guidelines Manual to address viewshed issues associated with foothill development.
Policy OS-2.5	Preserve and enhance Chico's creeks and riparian corridors as open space for their aesthetic, drainage, habitat, flood control, and water quality values.
Action OS-2.5.1	Consistent with the City's Municipal Code, require a minimum 25-foot setback from the top of creek banks to development and associated above ground infrastructure as a part of project review, and seek to acquire an additional 75 feet. In addition, require a larger setback where necessary to mitigate environmental impacts.
Policy OS-2.6	Protect oak woodlands as open space for sensitive species and habitat.
City of Gridley	
Goal 5:	To protect wildlife habitats, including those that could support sensitive species, as the City grows.
Policy 5.1	New developments shall use techniques, such as buffers, setbacks, and clustering of development to protect wetlands, riparian corridors, vernal pools, and sensitive species.
Policy 5.2	New development shall preserve open space corridors alongside agricultural drainage ditches.
Policy 5.3	The City will have former agricultural drainage ditches improved or restored in a way that avoids or improves habitat value and maintains or improves wetland function.
Policy 5.4	The City will condition new development, as necessary, to reduce erosion, siltation, and mitigate impacts to wetland, riverine, and riparian habitats.
Policy 5.5	New developments shall preserve and plant native or naturalized vegetation and avoid the introduction of invasive exotic species.
Policy 5.6	The City will require compliance with state and federal laws concerning special status species.
Policy 5.7	The City will ensure consistency of new development with applicable portions of the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan.
Policy 5.8	The City will explore opportunities to use mitigation fees from regional habitat preservation programs to restore agricultural ditches.
Policy 5.9	The City will continue to collaborate with the California Department of Fish and Game and the United States Fish and Wildlife Service, as appropriate, to ensure the protection and preservation of special-status species and their habitats within the Gridley Planning Area.

Implementation Strategy 5.1	The City will require plant and animal surveys and mitigation prior to new development, as necessary, for projects subject to CEQA compliance. The City will consult with state and federal resource agencies and BCAG to identify priority habitats and special status species locations, identify survey requirements, and establish mitigation ratios. In particular, the City will focus on valley elderberry shrub locations, raptor- and migratory bird nests, Swainson's hawk nesting areas and foraging habitat, potential giant garter snake habitat, and potential wetlands, riverine, and riparian habitats. The City's survey and mitigation requirements will be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, the California Native Plant Society, and the U.S. Army Corps of Engineers and the Butte County Habitat Conservation Plan and Natural Communities Conservation Plan (HCP/NCCP), as appropriate.
Implementation Strategy 5.2	The City will communicate with BCAG and other participants in the HCP/NCCP process to encourage use of regional mitigation fees for restoration of agricultural ditches in the Gridley area. Conservation Implementation Strategy 5.3 The City will update or adopt a new drainage master plan following adoption of the 2030 General Plan to implement drainage policies within the Planned Growth Area. In coordination with this effort, the City of Gridley will engage with the California Department of Fish and Game, the Regional Water Quality Control Board, the Army Corps of Engineers, and the US Fish and Wildlife Service to ensure that the appropriate biological and wetland related objectives are incorporated into the City's natural drainage approach. The City will communicate with regional, state, and federal resource agencies to ensure ease of permitting for the City's natural drainage and low impact development approach for the Planned Growth Area. The City will consult with relevant agencies to develop a streamlined permit process that ensures the feasibility of the City's stormwater best management practices.
Goal 1:	To create high-quality, functional open space corridors
Policy 1.6	Existing vegetation in open space corridors should be preserved, where it could provide ongoing habitat benefits or stormwater filtering. Noxious weeds, invasive species, and unhealthy plants can be removed, as well as vegetation posing an issue for public health or safety.
Policy 1.7	Newly planted landscaping in open space corridors shall be selected and designed to enhance habitat, provide aesthetic value, filter pollutants out of, and slow down stormwater runoff, and minimize ongoing landscape maintenance and watering.

Implementation Strategy 1.1	Following the adoption of the 2030 General Plan, the City will update the existing or prepare a new drainage master plan to address the Planned Growth Area. The drainage master plan will be designed to move away from individual site drainage requirements to an areawide approach for the Planned Growth Area, consistent with the General Plan. Although the focus for the natural drainage system is on the Planned Growth Area, the City will look for opportunities to expand these concepts into the existing developed City, also. The drainage master plan will be designed to handle specified storm events and deliver pre-development flows to the reclamation districts under post-development conditions. Construction of the Planned Growth Area stormwater management system will be phased in a way that provides adequate drainage as the area builds out. Temporary detention facilities may be necessary. The drainage master plan will emphasize the use of drainage swales to convey runoff although piping may be used in combination with swales, as appropriate, in the Planned Growth Area. The drainage master plan will be coordinated with the location of future parks so that excess stormwater can be detained and infiltrated within open playfield areas. Linear open space corridors themselves may also be designed to detain and infiltrate stormwater runoff. Preservation and restoration of agricultural drainage ditches should consider habitat value, sensitive species, and water quality objectives (see the Conservation Element). The City will explore whether mitigation fees through regional habitat conservation planning or grants from other government agencies could be made available to fund restoration elements of the City's open space strategy. The drainage master plan will be coordinated with a Nexus Fee Study to allow fair-share contribution to drainage improvements. The Nexus Fee Study should consider efficiencies created through co-location of linear parkland, trails, drainage, and buffering. Drainage fees should be structured to provide incentives for use of low impact development stormwater management best practices (see also the Conservation Element). The City will revise the Subdivision Ordinance, as necessary, to implement the drainage approach in the 2030 General Plan (and as reflected in the master drainage plan). Fenced-off, single-use detention basins will be prohibited.
City of Biggs	
Goal CR-3:	Protect and conserve sensitive habitats suitable for special-status species.
Goal CR-4:	Protect and enhance existing riparian habitat.
Goal S-3:	Protect and conserve sensitive habitats suitable for special-status species.
Policy S-3.1	Applicants for projects that have the potential to negatively affect special-status species shall conduct a biological resources assessment and identify design solutions that avoid such impacts. If adverse impacts cannot be avoided, they should be mitigated as prescribed by the appropriate state or federal agency.
Policy S-3.2	Actively participate in and support regional conservation planning efforts such as the Butte Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) sponsored by the Butte County Association of Governments (BCAG) to protect habitats and species and streamline permitting requirements and timelines.
Goal S-4:	Protect and enhance existing riparian habitat.
Policy S-4.1	Require new development to make all reasonable efforts to minimize and avoid the loss of federally and state-protected wetlands. If loss is unavoidable, require the applicant to mitigate the loss in accordance with federal and state law.
Policy S-4.2	Promote the establishment of open space reserves along riparian corridors for habitat protection and enhancement as well as community connectivity and open space.
Action S-4.2.1	Pursue the development of a linear parkway and recreation corridor along Hamilton Slough in the southwestern portion of the city and require new development adjacent to the slough to dedicate sufficient land for this intent. Include components of habitat preservation and public recreation, as well as maintain functions of storm water and irrigation water transport.
City of Oroville	

Goal OPS-8	Preserve and protect all special-status species, species that are candidates for federal or State listing, State species of special concern, and CNPS listed plant species.
Policy P8.1	Require a biological assessment of any proposed project site where federally-, or State-listed species or critical habitat may be present.
Policy P8.2	Require a habitat-based site assessment during the project design area. If potential habitat for special-status plant or animal species is identified, additional focused surveys may need to be conducted during the appropriate season.
Policy P8.3	Require agency consultation for proposed projects for which there is the potential to impact federal or State-listed species, or other appropriate agency assistance for non-listed special-status species.
Policy P8.4	Require proposed trail projects that have the potential to impact special-status species to coordinate trail planning and development with habitat preservation efforts.
Policy P8.5	Make information available to interested parties concerning the presence and condition of special-status species.
Policy P8.6	If special-status plant or animal species are found to be located within a development site, the developer shall mitigate project impacts in accordance with State and federal law. Examples of mitigation may include: • Redesign the proposed project to avoid and minimize impacts. • Restrict construction to specific seasons based on project specific special-status species issues (e.g. minimizing impacts to special-status nesting birds by constructing outside of the nesting season). • Confine construction disturbance to the minimum area necessary to complete the work. • Mitigate for the loss of special-status species by purchasing credits at an approved conservation bank (if a bank exists for the species in question), funding restoration or habitat improvement projects at existing preserves in Butte County, or purchasing or donating mitigation lands. • Maintain a minimum 100-foot buffer on each side of all riparian corridors, creeks and streams for special-status and common wildlife. Ruddy Creek would be an example of where this applies. • Establish setbacks from the outer edge of special-status species habitat areas. • Prohibit livestock grazing or drainage into the setback of special-status species habitat areas. • Construction of barriers to prevent compaction damage by foot or vehicular traffic.
Action A8.1	Work with BCAG to develop a regional Habitat Conservation Plan and Natural Community Conservation Plan and database, and subsequently update it as necessary, for the management and protection of sensitive biological resources such as wetlands, riparian corridors, and critical habitat areas. The plan should be developed in cooperation with the California Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, and local interest groups, and should address all known critical habitat areas, special-status plant populations, wildlife movement corridors specifically including deer migration routes, and should prioritize areas for management and protection that are likely to be impacted by development.

Action A8.2	Prepare and maintain an updated list of State and federally listed, threatened, and endangered species and species that are candidates for listing known or suspected to occur in the City of Oroville and its immediate vicinity, as well as other special status species identified by the California Department of Fish and Wildlife and the Mt. Lassen Chapter of the California Native Plant Society. This list should be monitored and updated every two years.
Action A8.3	Develop a set of guidelines for preservation of special-status species, including, if it is found to be feasible, a tiered approach that would prioritize protection of State and federally listed species. Such an approach may include identification of appropriate buffers for preservation of species identified on a development site, and appropriate avoidance and mitigation measures for special-status species determined to be affected by a proposed development.
Goal OPS-9	Protect areas of significant wildlife habitat and sensitive biological resources to maintain biodiversity among plant and animal species in the City of Oroville and the surrounding area.
Policy P9.1	Encourage the Department of Water Resources and Department of Fish and Wildlife to manage and maintain the Oroville Wildlife Refuge for multiple uses, while protecting property values on land adjacent to the refuge.
Policy P9.2	Minimize loss of wetland value or acreage consistent with the needs of wildlife and humans, to the extent practicable and as regulated by State and federal law.
Policy P9.3	Work with Butte County and the Department of Fish and Wildlife to support the protection of migratory and resident deer herds in the Planning Area, by preserving habitat and movement corridors.
Policy P9.4	Develop a program to preserve wildlife corridors that includes designing and constructing freeway and arterial street undercrossing areas at locations that currently serve as wildlife corridors.
Policy P9.5	Require the preparation of a site-specific tree management and preservation report by a certified arborist or urban forester for development proposals on sites that contain significant oak woodlands and related habitat. This report shall include recommendations for the retention of healthy mature trees wherever feasible and promote the concept of oak regeneration corridors within project design.
Policy P9.6	Protect sensitive plant and wildlife habitat from destruction and intrusion by incompatible land uses where appropriate. All efforts to protect sensitive habitats should consider: • Sensitive habitat and movement corridors in the areas adjacent to development sites, as well as on the development site itself. • Prevention of habitat fragmentation and loss of habitat connectivity. • Use of appropriate protection measures for sensitive habitat areas such as non-disturbance easements and open space zoning. • On-site or off-site habitat restoration as a potential mitigation, with a no net loss of habitat policy. • Potential mitigation or elimination of impacts through mandatory clustering of development, and/or project redesign.
Policy P9.7	Protect native plant species in undisturbed portions of a development site and use native species for replanting in disturbed portions of the project site.

Policy P9.8	Support efforts to eradicate invasive and noxious weeds and vegetation on public and private property.
Policy P9.9	Monitor the on-going health of sensitive habitat resources in Oroville and ensure the continued effectiveness of General Plan policies intended to protect, preserve and enhance these resources.
Policy P9.10	Encourage the coordinated design of large projects to preserve on-site open space, cluster development (where feasible) and conserve natural communities and/or habitat for special-status species that have been identified in proposed project areas.
Policy P9.11	Utilize native plant species to landscape public open space areas to promote the unique local flora of the region and provide habitat for local species.
Policy P9.12	Preserve orchards, woodlands, and wetlands by clustering development in locations where the land supports fewer natural resources, and infrastructure is in or is close to the project site. Actions
Policy A9.1	Work with Butte County to coordinate the maintenance of open space and habitat preservation at or near South Table Mountain.
Policy A9.2	Work to create and establish a mitigation bank designed to offset development impacts on wetlands.
Policy A9.3	Develop a plan to enhance individual oaks, oak woodlands and other native tree groups throughout the Planning Area. The plan will provide options for the management of oaks and other tree resources.
Policy A9.4	Develop guidelines and an education strategy for property owners about issues concerning development near or adjacent to sensitive communities or habitats that support special-status species. The guidelines should clearly define the range of activities allowed within buffer areas adjacent to sensitive habitats.
Policy A9.5	Develop a Greenway Program to preserve and connect wildlife and sensitive habitat corridors.
Goal OPS-10	Protect riparian, riverine, and open water habitats.
Policy P10.1	Require an appropriately sized buffer or setback, as determined by a qualified biologist, on each side of a riparian corridor creeks, stream, wetland, or pond. Development shall be prohibite within established setback areas for these riparian corridors, creeks, stream, wetland, ponds, and waterways.
Policy P10.2	Support a multi-use concept for riparian corridors that incorporates open space, aesthetic, habitat and wildlife corridor values, while addressing social, cultural, flood control, and recreation needs.
Policy P10.3	Encourage the Department of Water Resources to maintain water levels in State Water Project facilities, including Lake Oroville, to optimize protection of fisheries and other biotic resources, preserve open water as open space, and maximize recreational opportunities per the Department of Water Resources Bulletin 117-6, while also allowing for power generation, flood control and water supply.

Policy P10.4	Work with the Department of Water Resources and Department of Fish and Wildlife to ensure the ongoing operation of the Feather River Fish Hatchery.
Policy P10.5	Work with the Department of Fish and Wildlife and Department of Water Resources to ensure the preservation and enhancement of species of resident and anadromous fish along the Feather River, in Lake Oroville, and throughout the Planning Area.
Policy P10.6	Support removal or relocation of levees on the west side of the Feather River south of Oro Dam Boulevard as a means to enhance habitat in and around the Oroville Wildlife Refuge.
Policy P10.7	Work with the Oroville Mosquito Abatement District and the Butte County Mosquito Abatement District to ensure that preservation, pre-planning and design of water features is coordinated with acceptable disease vector control measures.
Policy P10.8	Consider the effects of mosquito abatement measures on other aquatic species and minimize these effects where known special- status species occur.
Action A10.1	Search for and acquire State, federal, foundation, and private funding to preserve, promote, restore, protect and enhance riparian corridors throughout the Planning Area.
Action A10.2	Continuously monitor the Department of Water Resources' compliance with its Federal Energy Regulatory Commission licensing agreements.
Town of Paradise	
Goal OCEG-5	Preserve the natural beauty and rural charm of Paradise
Goal OCEG-6	Preserve and protect naturally sensitive areas, and significant natural features in Paradise such as trees, views, stream courses, wildlife habitat and clean air.
Policy OCEP-13	Existing large trees of historic and/or cultural significance should be protected to the best of the town's ability. Trees so identified should only be removed as a last resort.
Policy OCEP-14	Reforestation and maintenance of trees shall be encouraged along road corridors.
Policy OCEP-15	Existing, significantly important natural habitat areas having high value for birds and other wildlife should be preserved for future generations through careful land use planning and public participation.
Policy OCEP-16	Ares fisheries shall be protected, and the cooperation of responsible agencies shall be sought to assure minimum stream flow and restore fisheries.
Policy OCEP-17	Where feasible, limit new development within the secondary planning area to designated development zones as established by the Department of Fish and Game to protect deer herd migration routes.
Policy OCEP-24	Stream courses identified and designated as significantly important shall be carefully protected from the impacts of land use development, both within and outside the town limits.
Policy OCEP-26	Natural riparian vegetation along creeks should be protected.

Policy OCEP-27	Protective land use designations and zoning classifications should be established for sensitive lands such as areas of resource production, steep canyons and stream corridors, and areas of significant natural resource value.
Implementation OCEI-8	Identify and map significantly important permanent and intermittent stream courses and drainage areas in the planning area on the Land Use Constraints Diagram and develop standards for their protection, including appropriate setbacks.
Implementation OCEI-9	Establish open space, resource conservation, or lmv density rural residential zoning on sensitive (environmentally constrained) lands, such as areas of resource production, stream corridors and slopes greater than thirty percent
Implementation OCEI-12	Amend the tree ordinance to assure that its administration and enforcement will help sustain and enhance the present forested setting of Paradise, and to assure that trees are only removed as a last resort. Establish a mitigation program for tree removal.
Implementation OCEI-14	Require significantly important natural areas with high wildlife value to be set aside and preserved during land use development.
Implementation OCEI-16	Acquire conservation easements on important agricultural lands as funds are available to do so.

Appendix D

Vehicle Miles Traveled Estimates

Final

BCAG 2024 RTP Travel Demand Model

Model Version 2.0 Development Report

Prepared for:
Butte County Association of Governments

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RS22-4241

FEHR PEERS

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1 Introduction

This report presents the Travel Demand Forecasting (TDF) model built for the Butte County Association of Governments (BCAG) in preparation for the 2024 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Update. This report describes the model development process, including the data sources used to develop key model inputs.

General Discussion of the TDF Model

This section summarizes the answers to commonly asked TDF model questions and how BCAG can use the model.

What is a TDF model?

A TDF model is a computer program that simulates traffic levels and travel patterns for a specific geographic area. The program consists of input files that summarize the area's land uses, roadway network, travel characteristics, and other key factors. Using this data, the model performs a series of calculations to determine the number of trips generated, the beginning and ending location of each trip, the mode of travel for each trip, and the route taken by the trip. The model's output includes projections of traffic volumes on major roads and important metrics such as vehicle miles of travel (VMT) needed for emissions forecasts and environmental impact analysis.

How is a TDF model useful?

The TDF model is a valuable tool for preparing long-range transportation planning studies, like the RTP. The TDF model can be used to estimate the average daily traffic volumes on the major area roads in response to planned population and employment growth, changes in transportation infrastructure, and policy assumptions; it also provides a consistent platform to analyze different land use and transportation scenarios.

How do we know if the TDF model is accurate?

To be deemed accurate for projecting traffic volumes in the future, a model must first be calibrated to a year in which actual land use data and traffic volumes are available and well-documented. A model is accurately validated when it replicates actual traffic counts on the major area roads within certain ranges of error established in the *2024 California Regional Transportation Plan Guidelines* (California Regional Transportation Plan Guidelines. (2024). Sacramento, CA: California Transportation Commission.) and it demonstrates stable responses to varying levels of inputs.

The BCAG model has been calibrated and validated to 2022 base year conditions using observed traffic counts, census data travel survey estimates, big data (StreetLight Data, Inc.), and land use data compiled by BCAG staff.

Is the BCAG TDF model consistent with standard practices?

The BCAG model is consistent in form and function with standard travel forecasting models used in transportation planning. The model includes a land-use based trip generation module, a gravity-based trip distribution model, a capacity-constrained equilibrium traffic assignment process, and a mode choice component that estimates transit, walk, and bike trips and generates auto trips for drive alone, shared ride with two people, and shared ride with three or more people. In addition to passenger travel, a separate truck trips model is included. The travel model uses Version 6.5 Citilabs Cube Voyager transportation planning software, which is consistent with many of the models used by local jurisdictions in California and throughout the nation.

How can the TDF model be used?

The TDF model can be used for many purposes related to the planning and design of Butte County's transportation system. The following is a partial listing of the potential uses of the model.

- To update the RTP/SCS
- To estimate VMT for emissions analysis and SB 743 compliant transportation impact studies
- To analyze land use and circulation elements of city or county general plans
- To conduct a regional transportation mitigation fee program
- To evaluate the traffic impacts of area-wide land use plan alternatives
- To evaluate the shift in traffic resulting from a roadway improvement
- To evaluate the traffic impacts of land development proposals
- To determine trip distribution patterns of land development proposals
- To support the preparation of project development reports for Caltrans

What are the TDF model limitations?

The BCAG TDF Model has been developed for regional planning purposes within a trip-based model framework. The model conforms to the recommendations outlined in the 2024 Regional Transportation Guidelines for Group B2 metropolitan planning organization (MPO) but does have limitations.

- The current structure has limited sensitivity to factors that may affect trip generation rates such as significant declines in economic activity. (e.g., COVID-19 effects). However, since the model has a land use occupancy component, economic cycles can be reflected in the assumed intensity of land uses within the model.
- Although the model network includes all local roadways, not all local roadways are assigned vehicle trips. Use of the model for local applications will require sub-area refinements and validation to ensure the model is appropriately sensitive to changes at this scale.
- A new mode choice component was added to the v1.0 BCAG model which was originally prepared for 2020 RTP/SCS. However, due to the lack of more recent mode choice survey data, the base year 2022 condition is still calibrated based on the 2010-2012 California Household Travel Survey, which might not fully align with the current post-pandemic conditions. Future

model updates would benefit from more current household travel surveys, on-board transit survey, and additional data sources such as Big Data.

- Model parameters relying on household travel survey data are based on a small sample size. The current household travel survey data is from 2010-2012 California Household Travel Survey which might be outdated especially with the travel behavior changes associated with post pandemic conditions. Additional big data (StreetLight Data, Inc.) is used to calibrate the model parameters to better reflect the base year 2022 condition. However, future model updates would benefit from a larger sample of households in Butte County and a more recent household travel survey.
- The trip-based model structure does not allow for complete estimates of forecasts of vehicle trips (VT) or vehicle miles traveled (VMT) generated by residential households or individual persons. Vehicle trips are assigned at the TAZ level and any connection to individual land uses that originally generated the trips are lost. VT and VMT can be expressed as ratios such as VMT per capita or VMT per household. But these ratios are based only on dividing total VMT by the number of people or households in the model area. It does not indicate the level of VT or VMT being generated.
- New technologies in the automotive market, such as autonomous vehicles (AV), are not currently included in the BCAG model. As AV penetration occurs and their operation on local roadways becomes more common, general travel behavior is expected to change. However, there is currently insufficient evidence or data to accurately assess the impact of AVs on trip generation and mode split, so AV technology is not incorporated in the current version of the BCAG model. As more data and studies on AVs become available, future updates to the model should consider including AVs in the model structure.

What updates were made to this version of the model?

When preparing 2020 RTP/SCS, major updates and changes were done for the BCAG model, including the change of platform from TransCAD to Cube, major improvements in trip generation process, and additional features including travel cost function, mode choice model and other updates. For 2024 RTP/SCS, the model base year was updated from 2018 to 2022. Additional significant refinements or changes include upgrading the model run structure from Cube Catalog to Cube Voyager. Besides this change, other updates include model input updates, model re-calibration with big data, and feature improvements. All the updates and changes are summarized below.

- *Platform update:* BCAG v1.0 runs on Cube version 6.4.3 with GIS features. The updated BCAG v2.0 runs with the latest Cube version 6.5 Voyager, with no additional requirements of GIS features.
- *Model Run Set-up:* BCAG v1.0 was established in Cube platform with Cube Catalog. In this version, the script is upgraded to a master script and run with Cube Voyager. All the post-processing analysis are saved as separate scripts that can be run for model output summaries.
- *Recalibration:* Trip generation and trip distribution based on StreetLight data and traffic counts that account for travel behavior changes from pre-pandemic to 2022 conditions.
- *Land Use Inputs:* Updated base year 2018 data to represent new base year 2022.

- *New Trip Generation Land Use:* A new land use category is added to the model to account for CSU Chico on-campus student housing.
- *Traffic Analysis Zone (TAZ) split:* Model TAZs are refined for the known future projects, such as Barber Yard in City of Chico, and Tuscan Ridge in Butte County. Additional boundary adjustments and TAZ split are done for CSU Chico, and nearby zones.
- *Transportation Projects:* The transportation project list was updated to reflect the currently planned and programed projects. The model network input is updated from geodatabase network to Cube .net format master network, with details about the project year, number of lanes, posted speed, and facility type to accommodate for the future year model development.
- *Traffic Assignment Parameter*: The capacity adjustment link attribute is updated to correctly represent the capacity for auxiliary lanes. Additional changes are made to the capacity lookup table to better assign the traffic into the model network based on the capacity calculated using facility type, speed, and number of lanes.
- *Updated Traffic Counts:* 2022 traffic counts were collected to calibrate and validate the existing 2022 conditions, which considers the post COVID-19 and post-Camp Fire effects on traffic conditions. Additional Caltrans annual traffic counts and big data are used to cross-verify the collected traffic counts including at gateways.

The updates to the model reflect an existing 2022 condition, with changes that help to streamline model run procedure and ease the model use for project application.

What future updates would benefit the model for regional scenario planning?

- Refine economic factors at a more specific geography and forecast cross-classified socioeconomics for each scenario for both residential and non-residential land use types.
- Evaluate shifts in future assumptions such as autonomous vehicles, demographics, fuel price, and land use development patterns.
- Update the truck trip model to reflect the changes in local delivery and larger economic trends associated with internet shopping.
- Although the model passes reasonableness checks, and static and dynamic validation, it is recommended that the model be validated in the study area before it used for local-scale projects. This is especially important in the near-term during the recovery of Paradise, since land use development and travel patterns may change significantly in a shorter amount of time than occurred pre-Camp Fire.

Study Area

The model area for the BCAG TDF Model encompasses Butte County, which includes the cities of Chico, Paradise, Oroville, Biggs, and Gridley. **Figure 1** shows the BCAG TDF model area. To represent travel into and out of Butte County, the model also includes 20 "external gateways" at major roads that cross the county line.

Figure 1 BCAG Model Area

2 Model Input Data

This section describes the data collection, review processes, and refinement for developing the model input data of the model.

Data Collection

A data collection effort was undertaken at the outset of the model development process. Data sources included the land use, roadway network, and traffic count database from BCAG, Caltrans Traffic Data Branch for freeway counts, and CSU Chico for Geographic Information Systems (GIS) data. Additional data sources are listed below.

- 2021-2022 Census Bureau data
- Department of Finance (DOF) housing estimates
- California Statewide Household Travel Survey (CHTS), 2012
- Employment Development Department (EDD) employment estimates
- Longitudinal Employer-Household Dynamics (LEHD) data
- StreetLight Origin-Destination Mobile Device/Connected Vehicle Data (Big Data), 2019, 2022
- California Statewide Travel Demand Forecasting Model
- Bike and pedestrian facilities
- Transit routes, stops, and schedules
- Traffic counts
- Transit ridership

Traffic Analysis Zone System

TAZs represent geographic areas containing land uses that produce or attract trip ends. Travel demand models use TAZs to connect land uses to the roadway network. The TAZ boundaries for the BCAG model were developed from the Butte County parcel layer and closely nest within city boundaries in Butte County.

The TAZ boundaries from the previous model were maintained for this update, except for a few locations where TAZs were further split or boundaries modified to include additional details:

- Chico Barber Yard
- Tuscan Ridge (between Chico and Paradise near Skyway)
- CSU Chico Student Housing and adjacent CSU campus and residential areas
- Chico High School and adjacent residential areas

The TAZ identification numbering system, organized by plan area, is maintained with this update, as presented in **Table 1**. TAZ maps showing the zone boundary and zone number are shown in **Appendix A**.

Table 1: TAZ ID by Plan Area

Plan Area	Zone ID Range
Model Gateways	1-20 (21-99 Blank)
Biggs	100-122 (123-199 Blank)
Chico	200-532 (533-599 Blank)
Gridley	600-636 (637-699 Blank)
Oroville	700-816 (817-899 Blank)
Oroville – County	900-924 (925-999 Blank)
Paradise	1000-1117 (1118-1199 Blank)
Magalia	1200-1217 (1218-1299 Blank)
Unincorporated Butte County	1300-1559 (1560-1999 Blank)

Notes: Zone IDs that do not currently exist but are available for use in more detailed project analyses are noted in parentheses.
Source: Fehr & Peers, 2024.

The BCAG model TAZ system includes 929 zones in the model area covering Butte County, and 20 model gateways where major roadways provide access into the model area. The model gateways represent all major routes by which traffic can enter, exit, or pass through the model area. As noted in Table 1, there are blank zone IDs reserved for each plan area available for use in more detailed project analyses.

Gateways Data

The gateways dataset represents travel beyond the model boundary and contains the initial number of productions and attractions associated with the gateway locations by trip purpose. The home-based work productions and attractions are broken down by income category. **Table 2** below contains the location of all the gateways in the model.

Table 2: BCAG Model Gateway Location

Gateway TAZ	Location
1	Hwy 99 -north of Butter County Line
2	Cohasset Rd - north of Musty Buck Rd
3	Hwy 32 - north of Humboldt Rd
4	Humboldt Rd - north of Jonesville Rd
5	Hwy 70 - north of Butte County Line
6	Oroville Quincy Hwy - north of Haskins Valley Rd

Table 2: BCAG Model Gateway Location

Gateway TAZ	Location
7	Forbestown Rd - east of Reservoir Rd
8	La Porte Rd - northeast of Robinson Mill Rd
9	Loma Rica Rd - south of La Porte Rd
10	La Porte Rd - south of Butte County Line
11	Hwy 70 - south of Butte County Line
12	Larkin Rd - south of Butte County Line
13	Hwy 99 - south of Butte County Line
14	Pennington Rd - south of Rutherford Rd
15	Colusa Hwy - west of Cherokke Canal Rd
16	Afton Rd - west of Aguas Frias Rd
17	Hwy 162 - west of Butte County Line
18	Road Z - south of Road 48
19	Ord Ferry Rd - west of Hugh Baber Ln
20	Hwy 32 - west of Butte County Line

Source: Fehr & Peers, 2024.

Land Use Data

Land use data is one of the primary inputs to the BCAG model and this data is instrumental in estimating trip generation. The model's primary source of land use data is BCAG's residential, school, and commercial parcel and footprint datasets (maintained in a GIS format). Each database provides information on the existing level of development within the county and is aggregated to the model's TAZs. These databases are maintained by BCAG staff in association with CSU Chico. The land use data in the model is divided into several residential and non-residential categories. The BCAG model has 18 land use categories, which is consistent with the previous model except for the new land use type "CSU_HHSTU" representing the number of on campus student housing units. This new land use type is added to the model to better estimate travel activities near CSU Chico. Model land use categories and the detail description are described in **Table 3**.

Table 3: Model Land Use Categories

Land Use Type	Model Land Use ID	Units
Single Family Residential	SF_DU	Dwelling Units
Multi-Family Residential	MF_DU	Dwelling Units
Mobile Home Residential	MH_DU	Dwelling Units
Office	OFF_KSF	Thousand Square Feet
Medical Office	MED_KSF	Thousand Square Feet
Hospital	HOSP_KSF	Thousand Square Feet
Industrial	IND_KSF	Thousand Square Feet
Public/Quasi-Public	PQP_KSF	Thousand Square Feet
Park	PARK_AC	Acres
Neighborhood-Serving Retail	RET_KSF	Thousand Square Feet
Region-Serving Retail	RRET_KSF	Thousand Square Feet
Hotels	HOTEL_RMS	Rooms
K-12 School	K12_STU	Students
University	UNIV_STU	Students
Community College	CC_STU	Students
Casino	CASINO_SLT	Slots
On Campus Student Housing	CSU_HHSTU	Dwelling Units

Note: CSU_HHSTU is estimated based on the number of students that live in on-campus housing. It is assumed as 2 persons per dwelling unit.
Source: Fehr & Peers, 2024.

Socio-Economic Data

The Socio-economic Data (SED) represents the number of households by housing type (single family, multi-family, mobile home, university student housing), number of residents, and household income level (low, medium, and high) for each TAZ. Additionally, the SED file contains the total square footage for the retail, regional retail, industrial, office, medical, hospital, and public/quasi-public land uses in addition to the number of hotel rooms, university students, community college students, K-12 students, park acreage, and the number of slot machines at the casinos.

Additional SED information includes household proportion by household type, size and income level. These SED proportion was updated in the 2020 RTP/SCS when BCAG model v1.0 was developed using U.S Census Bureau 2018 American Community Survey (ACS) 1-year Estimates for household inputs. When developing 2022 base year SED inputs, these values are preserved as the previous estimates with minor cleanups to calibrate to 2022 condition. These detail inputs are useful for project level analysis to better understand the change in trip generation by different land use combinations. This feature can also be

used to evaluate different SCS strategies. Following section described the development of household information in the SED dataset for BCAG model v1.0 which are still valid for BCAG model v2.0.

The household information in the SED dataset was created by applying the household type proportions information from the U.S. Census Bureau. (U.S. Census Bureau (2018). American Community Survey 1-year Estimates. Retrieved from https://www.census.gov/data/developers/data-sets/acs-1year.html.) and applying them to the number of dwelling units in the land use datasets provided by BCAG. Through the application of these proportions the SED data contains the number of single family and multi-family dwelling units arranged by number of residents and household income category. The household income categories include:

1. Low: less than $35,000 a year
2. Medium: between $35,000 and $75,000 a year
3. High: greater than $75,000 a year

Additionally, the proportion of high, medium, and low-income jobs were calculated for each of the employment related land uses (retail, office, medical, etc.) for each TAZ. This input is currently not activated in the model, but the details are retained in case future analysis is needed to further evaluate changes in travel behavior across different income groups for jobs.

The U.S. Census Bureau Longitudinal Employer-Household Dynamics Quarterly Workforce Indicators (QWI)[1] dataset for 2018 was used to divide the employment land uses into the high, medium, and low-income categories. The average annual income was calculated for each North American Industry Classification System (NAICS) sector in Butte County using the QWI dataset. Each of the NAICS sectors were classified into a high (>$75,000), medium ($35,000 to $75,000), or low (<$35,000) category based on the estimated annual income. The NAICS sectors were then associated with one of the non-residential land use categories. **Table 4** below contains the relationship of NAICS sectors to the model land use with the corresponding income category. This relationship is currently preserved for both the 2022 base year and all forecast scenarios.

Table 4: Land Use Type by NAICS Sectors and Income Category

Land Use	Income Category	NAICS Sectors
Retail & Regional Retail	All Income Categories	44-45 Retail Trade, 72 Accommodation and Food Services
	Low (<$35,00)	44-45 Retail Trade, 72 Accommodation and Food Services
	Medium ($35,000 to $75,000)	-
	High (>$75,000)	-

[1] U.S. Census Bureau. Longitudinal Employer-Household Dynamics, Quarterly Workforce Indicators (QWI). 2018. https://lehd.ces.census.gov/data/#qwi

Table 4: Land Use Type by NAICS Sectors and Income Category

Land Use	Income Category	NAICS Sectors
Industrial	All Income Categories	21 Mining, 22 Utilities, 31-33 Manufacturing, 48-49 Transportation and Warehousing
	Low (<$35,00)	-
	Medium ($35,000 to $75,000)	21 Mining, 31-33 Manufacturing, 48-49 Transportation and Warehousing
	High (>$75,000)	22 Utilities
Office	All Income Categories	42 Wholesale Trade, 51 Information, 52 Finance and Insurance, 53 Real Estate Rental and Leasing, 54 Professional Scientific, and Technical Services, 55 Management of Companies and Enterprises, 56 Administrate and Support and Waste Management and Remediation Services, 71 Arts, Entertainment, and Recreation, 81 Other Services (except Public Administration)
	Low (<$35,00)	53 Real Estate Rental and Leasing, 56 Administrate and Support and Waste Management and Remediation Services, 71 Arts, Entertainment, and Recreation, 81 Other Services (except Public Administration)
	Medium ($35,000 to $75,000)	42 Wholesale Trade, 51 Information, 52 Finance and Insurance, 54 Professional Scientific, and Technical Services, 55 Management of Companies and Enterprises
	High (>$75,000)	-
Medical & Hospital	All Income Categories	62 Heath Care and Social Assistance
	Low (<$35,00)	-
	Medium ($35,000 to $75,000)	62 Heath Care and Social Assistance
	High (>$75,000)	-
Public/Quasi-Public	All Income Categories	22 Utilities, 61 Educational Services, 92 Public Administration
	Low (<$35,00)	-
	Medium ($35,000 to $75,000)	61 Educational Services, 92 Public Administration
	High (>$75,000)	22 Utilities

Source: Fehr & Peers, 2024.

The total number of employees by NACIS sector was calculated for each TAZ using the Workplace Area Summary datasets from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics (LODES)[2] dataset. The proportion of employees in each NAICS sector was calculated for each Census Tract, and these values were allocated to the TAZs using a spatial join in

[2] U.S. Census Bureau. Longitudinal Employer-Household Dynamics. LEHD Origin-Destination Employment Statistics (LODES). 2018. https://lehd.ces.census.gov/data/#qwi

ArcGIS. The TAZs were assigned the NACIS sector proportions based on which Tract their centroid fell within.

The employment totals were then used to estimate the proportion of employees in each NAICS sector. The NAICS sector proportions were then assigned to the TAZs using a spatial join in ArcGIS. TAZs were assigned the proportion values based on which Tract their centroid fell within. The sector proportions were then summarized to each land use and income category using the crosswalk detailed in Table 4. The same percentages file is currently used in all scenarios and can be changed for individual scenarios as appropriate.

Roadway and Bicycle Network

The model network combines the roadway and bicycle networks into one master network file. The master network is inclusive of all roadway and bicycle network links that existed in 2022 plus those planned to be added through 2045. As described in the model update section, the model network input is updated from the geodatabase network to Cube .net format master network, with details about number of lanes, posted speed, and facility type for different scenarios. This update eliminates the potential issue in model run set up due to the compatibility issue of Cube and ArcGIS versions. The updated master network is also easier to edit and understand. Development of the master network included appropriately sorting and merging all the GIS data collected for the roadway and bicycle networks, reviewing current and historical aerial maps, and refining the network for implementation into the model structure. The model master network still maintains a high level of detail of the roadway and bicycle facilities. Compared to geodatabase format network, Cube .net format network loses the true shape of each facility from the GIS centerline files. However, that level of detail has not influenced the model's output estimates and forecasts.

The roadway and bicycle facilities included within the master network also focuses on the most used facility types. The master network facility classifications included in the model, consistent with the Butte County RTP/SCS, are described below.

Freeways

Freeways are high-capacity facilities that primarily serve longer distance travel. Access is limited to interchanges typically spaced at least one mile apart. State Route (SR) 70 and SR 99 are the major freeways in Butte County. Portions of SR 149 that connect SR 70 and SR 99 are also designed to meet freeway standards.

High Occupancy Vehicle Lanes

High Occupancy Vehicle (HOV) lanes are dedicated facilities on freeways with access restricted to single occupant vehicles (i.e., vehicles with only the driver, no passengers). These facilities can be restricted by time of day. Currently, no HOV lanes exist within Butte County; this facility type is included in the available options for possible future projects and modeling.

Expressways

Expressways are high-capacity facilities that primarily serve intermediate distance travel between intercity destinations. Access is limited, but not to the extent of freeways, and travel lanes may or may not be divided. Portions of SR 70, SR 99, SR 149, and Skyway are classified as expressways in Butte County.

Arterials

Roadway segments classified as Arterials are major roads that provide connections within cities, between cities and neighboring areas, and through the cities (cut-through traffic) of Butte County. Arterials in Butte County typically have one or two lanes in each direction, with travel speeds of 30-40 miles per hour (mph).

Examples of these arterials are East Avenue in Chico, Clark Road in Paradise, and Olive Highway in Oroville.

Collectors

Collectors (Major and Minor) are facilities that connect local streets to the arterial system and may also provide direct access to local land uses. Collectors generally provide two travel lanes and typically have a posted speed limit of 25 mph or greater. Examples of these collectors are Ceres Avenue in Chico, Nunneley Road in Paradise, and Myers Street in Oroville.

Local Streets

Local Streets primarily feed collector roads and generally provide two travel lanes with a posted speed limit of 25-30 mph. The model network focuses on freeways, arterials, and collectors but does include most of the local streets represented in the Butte County GIS centerline file to provide access from traffic analysis zones to the larger network. If a project application needs to assess local roadway performance, the model has been designed such that detail can be added to improve its sensitivity related to these facilities. These types of changes would typically be performed as part of a specific project application.

Transit Only Facilities

Transit Only facilities represent any lanes or dedicated travel-ways for transit use, restricted to all other vehicles. Currently no transit only facilities exist within Butte County; this facility type is included in the available options for possible future projects and modeling.

Bicycle Only Facilities

Bicycle Only facilities represent Class I multi-use off-street paths, or paved trails separated from roadways. These facilities restrict vehicle access and allow for shared use by cyclists and pedestrians. Class II bike lanes or Class II bike routes are represented along a roadway and identified separately based on the bicycle facility type attribute. The existing facilities were coded into the transportation network and coded with the appropriate functional type to prohibit use by other modes in both the accessibility calculation and in traffic assignment.

Pedestrian Facilities

Pedestrian facilities, such as sidewalks or multi-use paths, are not separately identified in this model. Access for pedestrians is assumed on all roadways and bicycle facilities, except for along freeways and expressways.

Table 5 shows each of the roadway and bicycle network facility types, along with the initial roadway speeds and capacities used for each roadway classification in the model.

Table 5: Model Roadway Facility Types

Facility Type ID	Facility Classification	Speed Range (MPH)	Lane Capacity Range (vphl)[1]
1	Freeway	55-65	1,750 – 2,000
2	Ramp: Freeway-to-Freeway	55-65	1,800
3	Ramp: Slip	20-45	1,500
4	Ramp: Loop	20-45	1,250
5	HOV	55-65	1,300 – 1,800
6	Expressway	35-55	800 – 1,100
7	Arterial	30-40	750 – 900
8	Collector	25-45	700 – 800
9	Local	25-30	600 – 700
10	Transit Only	25-55	NA
11	Bike Only	-	NA
100	Centroid Connector[2]	25	NA

1. vphl – vehicles per hour, per lane. These capacities are used for trip assignment purposes and do not reflect traffic operational throughput during peak hours, which is often lower especially if congestion occurs.
2. Centroid connectors are abstract representations of the starting and ending point of each trip, and therefore should have no capacity constraints

Source: Fehr & Peers, 2024.

The roadway and bicycle master network database include the network link attributes identified in **Table 6.** These attributes were checked using maps, aerial photographs, and other data provided by BCAG. In addition, the vehicle count data for the 309 roadway segments where traffic counts were collected in 2022/2023 are included at the relevant links for model validation.

Table 6: Master Network Link Variables

Attribute	Description	Example
A	A node	43
B	B node	11791
NAME	Roadway Name	SR 99
DISTANCE	Link distance in miles	3.56
DIST_ADJ	Link distance adjustment (e.g., at Model Gateways)	5
TERRAIN	Terrain (1=Flat, 2=Rolling, 3=Mountain)	1
PLAN_AREA	Planning area where link is located	Chico
DIR	Overall direction under all years (Two-Way = 0, One-Way=1). If any year is two-way, then this attribute is set to two-way.	0
USE	Indicate if the link is used in the model run	1
JURISDICTION	Political jurisdiction where link is located	Oroville
LANES_YEAR	Number of directional through vehicle travel lanes under specific year	1
SPEED_YEAR	Vehicle free-flow speed in miles-per hour under specific year	50
FACTYP_YEAR	Facility types under specific year. See Facility Types tab for codes	11
CAPADJ_YEAR	Vehicle lane capacity adjustment for Auxiliary Lane under specific year (factor for vehicle lane capacity adjustment: null, 0= no adjustment, 0.9 = adding 90% capacity)	0
TOLL_YEAR	Code used for cost for vehicles on toll facilities under specific year (i.e., VMT tax)	0
AREATYP_YEAR	Land use development affecting roadway capacity: Rural-1, Suburban-2, Urban-3, CBD-4	1
CNTID	Count ID	23
CNT_YR	Count Year	2017
DAY_CNT_TOT	Daily Count Two-Way Total	3,724
AM1_CNT_TOT	AM Peak Hour Count Two-Way Total	331
PM1_CNT_TOT	PM Peak Hour Count Two-Way Total	399

Source: Fehr & Peers, 2024.

In addition, the master network is also represented by nodes at the end of each roadway/bicycle link. The node attributes for the master network are presented in **Table 7**.

Table 7: Master Network Node Variables

Attribute	Description	Example
N	Node number	43
X	Y-coordinate of node in NAD_1983_StatePlane_California_II_FIPS_0402_Feet	6664944.483
Y	X-coordinate of node in NAD_1983_StatePlane_California_II_FIPS_0402_Feet	2248124.439

Source: Fehr & Peers, 2024.

Transit System

Rather than coding detailed transit routes, stops, and access, the transit system is represented by zones that have access and the frequency (in the form of headway) for adjacent transit routes. The TAZ dataset contains information on the peak and off-peak frequency of transit service for each TAZ. The frequency of transit service was determined for each of the TAZs using a GIS layer representing the bus stop locations throughout Butte County and 2022 B-Line schedules. TAZs that occurred within a quarter mile of a bus stop location were considered to be served by that bus stop. The frequency of peak and off-peak transit service was determined for each bus stop, and this information was assigned to TAZs that were within a quarter mile of the stop. If a TAZ was served by more than one bus stop, then the values from the bus stops with the most frequent service were assigned to the TAZ. The 2022 transit frequency values were updated for future scenarios based on information provided by BCAG.

As with most regional models, the transit system only includes routes and stops within Butte County. The primary reason is the sensitivity to transit of stop location relative to land uses outside of the travel model not being available or being too costly to obtain and model. Other common reasons for not including transit outside of the model region are the inability to accurately include number of stops, travel time, or transfers beyond the model boundary and the relatively low number of riders for a high level of effort.

Roadway Vehicle Counts

BCAG provided count data of vehicle traffic volumes on 309 roadway segments throughout the model area. Vehicle counts were conducted over a three-day period mid-week (Tuesday through Thursday) in Year 2022 and 2023. The data also includes breakdown by travel speed and number of heavy vehicles. The roadway vehicle count data was used for validation of the base year model.

Transit Routes and Ridership

BCAG provided transit stop, route, and ridership information for B-Line Transit, the local and regional transit service provider in the base year 2022. BCAG also provided the list of future transit projects as identified in the 2024 RTP and previous 2020 RTP.

2012 California Household Travel Survey (CHTS)

The California Household Travel Survey (CHTS) was conducted in 2012 and 2013 in 58 counties.[3] The CHTS is a combination of travel diary and GPS data, which allowed for under-reported information such as walking trips, non-home-based trips, and stops along a long trip. The CHTS is publicly available on nrel.gov at a granular level.

2012 CHTS data was previously summarized and used to validate base year 2018 of the BCAG Model v1.0 for 2020 RTP/SCS. As mentioned in the model limitation section, no additional CHTS data has been

[3] https://dot.ca.gov/programs/transportation-planning/economics-data-management/transportation-economics/ca-household-travel-survey

published since 2012/2013. The same CHTS data is used when calibrating and validating the updated base year 2022 for 2024 RTP/SCS.

Preparation and Cleaning of CHTS Data

The publicly available version of the 2012 CHTS required a substantial amount of preparation, including re-weighting, before it was suitable for model development. Fehr & Peers has done extensive data preparation, including statewide and county weights, to create tailored summaries. Examples are residential VMT, trip length, and mode share summaries. These can be found in **Appendix B.**

Identification of Trip Purposes

The 2012 CHTS data does not describe trip purposes directly; instead, it contains a "place" file whose attributes include a listing of up to three activities the respondent participated in at that place. A small list of place purposes was distilled from this activity information: HOME, WORK, COLLEGE, K12, SHOP, or OTHER. In this project, we summarize total person trips starting and ending within Butte County for all trip purposes.

Estimation of Survey Weights

Surveys capture the characteristics of an entire population by randomly sampling a small proportion of the population. Often, a perfectly random sample is hard to achieve — some groups are difficult to survey and are under-represented, other groups are over-represented. To balance this bias, estimated sample weights "reshape" the sample. Fehr & Peers estimated household sample weights for the CHTS to balance the survey sample to match county-level percentages for several variables as reported in the 2012 ACS 5-year estimates (U.S. Census Bureau (2018). American Community Survey 5-year Estimates. Retrieved from https://www.census.gov/data/developers/data-sets/acs-5year.html.). Listed below are variables used as controls for the re-weighting.

- Household size (one to seven or more).
- Household income (nine income categories).
- Number of workers per household (zero to three or more).
- Number of vehicles owned per household (zero to four or more).
- Household residential unit type (three categories).
- Household size (one to five or more) cross-classified by household income (five categories).
- Household size (one to five or more) cross-classified by number of vehicles per household (zero to four or more).
- Household size (one to five or more) cross-classified by number of workers per household (zero to three or more).

The survey weights must be correctly applied to yield accurate summaries. There are three types of weights included with the cleaned CHTS data:

- Household-level weights (hhweight, hhexpweight, and hhexpweight_weekday)

- Trip-level weights (tripweight, tripexpweight, and tripexpweight_weekday)
- Trip correction factor (tcf)
- The relationship among the three weighting factors is:
    - *Tripweight = hhweight * tcf*
    - *Tripexpweight = hhexpweight * tcf*
    - *Tripexpweight_weekday = hhexpweight_weekday * tcf*

To use CHTS data accurately, one or more of these weights must be applied. A trip weight is used to weight trips relative to one another, and it is useful for computing percentages. At the same time, the tripexpweight factors provide estimates of the total number of trips. In this project, we implemented the tripexpweight_weekday weighting factor.

Place Type

In addition to locating households and trip ends using census tracts, Census Designated Places (CDPs), and counties, each household location and a trip end is assigned a place type category. The place type is based on the number of jobs and the working-age population accessible from the household or trip end.

CHTS Summaries for Validation

The CHTS data were summarized for trips starting and ending within Butte County for model validation purposes. The type of information from the CHTS used for validation is listed below.

- Mode share
- Mode share by trip purpose
- Total Households (for comparison and statistical purposes)
- VMT per household (and by trip purpose) for validation
- Daily vehicle trips per household (and by trip purpose) for trip generation
- Average vehicle trip length (and by trip purpose) for validation
- Average person trip length (and by trip purpose) for validation
- VMT and Person Miles Traveled (PMT) per capita/household for validation

The “simple” and “flat” summaries contain one record per geography which is suitable for joining to GIS. The “simple” summary includes a smaller number of metrics, while the “flat” summary contains many more details. The “filterable” summary provides many records per geography and is viewable in Excel.

In this project, we created a summary of trips that only start and end within Butte County. The methodology is summarized below:

- The code is CHTS_nonhighway_validation.R
- The trip unit is "personTrips"
- Region name countyList is set for 6007 which is Butte County

- Input files are households_clean.csv and trips_clean.csv for households and trips variables, respectively.
- For the home and work tracts, the geography lookup variable is set to geoglookup_full.csv
- The output is written in the CSV format.

A high-level summary of the survey records is shown below for both the SACOG region and Butte County. Detailed tables with metadata are in **Appendix B**.

Table 8: CHTS High-Level Summary

Code	Name	Type	lookup	Total Households	Total person trips
3	SACOG	region	SACOG region	816,939	6,803,865
6007	Butte	county	Butte County	85,074	664,437

Source: Fehr & Peers, 2024.

Interregional Travel

The travel model generates total person and commercial vehicle trips that travel completely internal to Butte County, and interregional trips that travel to, from, and through Butte County. These trip types are referenced as follows in the remainder of this document.

- Internal-internal (I-I) trips that originate and terminate within the model area.
- Internal-external (I-X) trips that originate within but terminate outside of the model area.
- External-internal (X-I) trips that originate outside and terminate inside of the model area.

To estimate base and future year data for the interregional trips, the California Statewide Travel Demand Model (CSTDM), California Statewide Freight Forecasting Model (CSFFM), and mobile device/connected vehicle data were used. The mobile device/connected vehicle trip estimates were obtained from StreetLight data to refine the I-I, I-X, X-I, and gateway trips for the base year (i.e., recognizing post-pandemic travel patterns), and the growth from the CSTDM and CSFFM were applied to the refined base year interregional data.

As discussed in the Data Collection section, StreetLight data from 2019 and 2022 were used to analyze changes in travel behavior in Butte County post-pandemic. The data indicate that Butte County's internalization rate increased from 88% in 2019 to 89% in 2022, with the most notable growth in home-based work (HBW) trips, which rose from 88% to 91%. However, while HBW trips accounted for 24% of total I-X and X-I trips in 2019, this percentage declined to 19% in 2022. In contrast, home-based other (HBO) and non-home-based (NHB) I-X and X-I trips both saw an increase of 2% to 3%.

California Statewide Travel Demand Model

The 2020 RTP/SCS model utilized the CSTDM to estimate base year and future year interactions with the gateways and for through trips. Since the latest version of the model has not been released, the same through trips and interregional factors from the 2020 RTP/SCS model were used as the starting point for calibration and then refined based on mobile device/connected vehicle data, count data, and the updated trip generation for passengers and commercial vehicles. Similar to the CSTDM forecast for passengers, the CSFFM was used to estimate interregional commercial vehicle travel.

Mobile Device Data (Big Data)

Travel patterns are typically expressed in terms of origins and destinations – origins being locations where trips begin, and destinations being locations where trips end. In its most basic form, a travel pattern is an origin-destination pair that represents a direct trip from one location to another. Work commute trips are among the most common origin-destination pairs, typically from a residence to a place of employment in the morning, and then back to home at the end of a workday.

StreetLight Data aggregates anonymized location-based data from smartphones, car/truck navigation systems, and connected vehicles. The data is used to estimate the distribution and quantity of trips between or through geographic areas. Conventional approaches to estimating trip distribution rely on travel demand models. The use of StreetLight data, however, casts a snapshot of origin-destination information grounded in the actual travel behavior of roadway users. The use of GPS data was to capture the auto travel separate from the commercial vehicle travel and was appropriate for distribution of internal-external (IX) and external-internal (XI) personal and commercial vehicles (medium and heavy trucks), and external-external (XX) personal and commercial vehicles since the model does not reflect interregional transit.

Two different sets of StreetLight data were used in the model calibration and validation process to develop the base year 2022 conditions for the BCAG model. The first set of data is similar to what was used for the 2020 RTP/SCS BCAG model v1.0 base year scenario, including IX, XI, and XX trip characteristics from January to April 2022 during the post-pandemic period. Given the rapid changes in travel behavior over the past three years (2019–2022) due to the pandemic, additional analysis was conducted using data from 2018 (pre-Camp Fire) and 2019 (post-Camp Fire, pre-pandemic). Comparing data from these three periods provides a deeper understanding of changes in travel behavior and helps establish more accurate calibration targets.

The second set of StreetLight data is a unique dataset released specifically for VMT analysis, including aggregated sample trip counts by trip purpose for March and April 2022. This new data, combined with CHTS data, was used to estimate vehicle trip generation rates and travel distances, further refining the calibration and validation of the base year 2022 conditions.

Travel Cost

In addition to travel time, the cost of travel influences auto ownership, trip distribution, mode choice, and route choice. Although the model allows for a link-based cost, BCAG does not have existing or planned roadway user fees based on distance traveled or for using specific roadways. If such facilities are expected in the future, this feature should be calibrated prior to use.

Parking Cost

The average parking cost per trip can be stored as a zonal attribute and can be used in both trip distribution and mode choice. However, this feature has not been activated in the model.

Auto Operating Cost

Auto operating costs are a major influence on travel. Auto operating costs include fuel price, maintenance costs, and tire replacement costs. The California Air Resources Board (CARB) has developed a spreadsheet that takes these factors into account for each MPO and for predetermined evaluation years. The spreadsheet was used to develop costs for the years corresponding to the base year and future scenario years and the model interpolates the values for other model years. **Table 11** shows the presumed auto operating costs applied in the model.

Table 9: BCAG Auto Operating Costs

Year	Cost[1]
2022	$0.2138
2035	$0.1892
2040	$0.1846

1. Costs represented in 2018 dollars. The model input file is in cents and contains interpolated values for years between those listed in the table.

Source: California Air Resources Board spreadsheet tool, 2020.

Accessibility

The BCAG TDF model includes two accessibility pre-processors. These are Python scripts, operating on the input TAZ and network shapefiles to produce accessibility metrics.

- Intersections.py produces a count of the number of intersections per TAZ.
- RoadwayMiles.py produces the sum of walkable network miles.

These script outputs, in data base format (DBF), are used during the model input preparation stage to calculate the accessibility metrics shown in **Table 10** at the TAZ level.

A third input file, VMTseed, contains an estimate of the average commuting VMT generated per worker in the TAZ. The starting estimates can be approximate because this estimate is updated throughout the model process.

During the input preparation phase of the model, TAZ-level accessibility metrics and built environment ("D variable") metrics are produced. These metrics are updated as the model runs through its feedback loops. Some of the accessibility metrics are implemented later in the model; others are provided as model outputs. Table 10 below shows key accessibility metrics used in the model.

Table 10: Accessibility Metrics

Metric	Description	Where used
ATYPE	Place Type categorization to three categories based on trip generation difference. (Explained under Trip Generation Rate Section)	Trip Generation
LOG_EMPD	Log of employment density (jobs per developed acre)	Auto Ownership, Mode Choice
INTDEN	Intersection density (intersections per square mile)	Auto Ownership, Mode Choice
EMP_30TRN	Jobs within 30 minutes by transit	Auto Ownership, Mode Choice
COMMUTECOST	Average annual commute cost	Auto Ownership

Source: Fehr & Peers, 2024.

Data Quality Checks

The input data were reviewed and compared using statistical methods or reasonableness checks prior to calibration and validation of the model. Survey data were evaluated statistically to determine if there was a sufficient sample to use for calibration or validation, resulting in the combination of multiple sources of data for calibration to provide a larger data set and using Butte County only data for validation at an appropriate level to match the samples. Traffic count data were compared between the multiple days to identify potential outliers. If there were outliers nearby locations were compared to determine which count was most reasonable to use as a single day observation, while those without outliers were averaged. Roadway, transit, and bike/pedestrian networks and TAZ boundaries were reviewed visually using color themed maps. Land use control totals by category and totals by jurisdiction were reviewed. Transit system data were compared to published route maps and schedules. Big data was reviewed and cross-checked against the other data sources mentioned above to confirm the reasonableness.

3 Model Estimation, Calibration, and Reasonableness Checks

This section describes the model estimation, calibration, and reasonableness checks performed during the update to the model.

Model estimation is the term used to describe the process by which model inputs (e.g., trip rates, friction factors, I-X/X-I percentages) are derived from sources like survey and count data for application in the model calculations.

Model calibration refers to the adjustment of the model parameters to better replicate observed travel behavior and traffic volumes in the region. Calibration improves model accuracy and is a required step to ensure that the model reflects existing data, is sensitive to the type of projects it will be applied, and meets the validation criteria described in the following section.

Reasonableness checks refer to testing of individual model components to ensure they closely replicate observed data prior to the result being used in a downstream process.

The sections below describe the calibration from the updated base year 2022 model followed by the resulting reasonableness check for each model component.

Trip Generation and Trip Balancing

Trip generation relates to the number of person trips going to/from a site based on the type of land use intensity and diversity of that particular site. With the functionality of person trips rather than total vehicle trips, separating home-work trips by income for the household and salary for the worker allowed for matching of home and work location.

The person trip generation portion of the model follows the following process:

- Daily person trip generation rates for each land use type
- Trip purpose percentages of daily person trip generation rates
- Interregional (IX and XI) trip percentages by trip purpose
- Trip productions and attractions balanced by trip purpose and income level

Trip Generation Rates

When updating the model for 2020 RTP/SCS, land use, demographic, and socio-economic factors in a cross-classified formulation. The same cross-classified formulation is used in person trip generation rate

for 2024 RTP/SCS and is developed starting with the 2020 RTP/SCS rates. The following section described the change to person trip generation rates for base year 2022 condition.

Place Type

Place type is defined based on different trip generation rates within the BCAG region. As mentioned in the previous section, StreetLight VMT data is used to estimate the change in vehicle trip generation rates for all Census Block Groups (CBG) within the region, and three place types are defined based on the trip generation rate for aggregated CBGs. The three place types are listed in **Table 11** below.

Table 11: Place Types

Place Type Category	Alternate Name	Description of Place Type based on Trip Generation Rate
1	AType1	All remaining TAZs, applied a 3% higher residential trip generation rate and 1% higher non-residential rate comparing to County Average
2	AType2	Magalia, Biggs, Gridley, and Southwest of Butter County, applied a 5% lower residential trip generation rate and 1% higher non-residential rate comparing to County Average
3	Atype3	Northeast and Southeast of Butter County, applied a 12% lower residential trip generation rate and 6% lower non-residential rate comparing to County Average

Source: Fehr & Peers, 2024.

Residential Person Trip Generation

The previous update of the BCAG model for the 2020 RTP/SCS enhanced the residential trip generation sub-model from one that relied exclusively on land use as the independent variable to one that considered land use, demographic, and socio-economic factors in a cross-classified formulation. The trip generation rates for single family and multi-family homes were expanded to represent the different trip generation characteristics of a variety of households within Butte County. The cross-classification for residential land use is based on household size (1, 2, 3, or 4+) and household income (<$35K, $35K-$50K, $50K-$75K, >$75K).

Table 12 contains the cross-classified residential vehicle trip rates for occupied single family, multi-family, mobile homes and College on-campus student housing. The rates were estimated using the 2012 CHTS data and adjusted during the model calibration with StreetLight data and Census 2022 household estimations. This CHTS survey was conducted statewide and provides a complete summary of daily household trip making.

Table 12: Residential Daily Person Trip Generation Rates

Place Type	Household Type	Household Size	Income			
			< $35K	$35K – $50K	$50K – $75K	> $75K
1	Single Family	1	3.21	3.21	3.85	3.85
		2	8.39	8.39	9.07	11.79
		3	8.39	8.39	9.07	11.79
		4	12.15	12.15	13.31	14.39
		5	18.08	18.08	19.37	21.96
	Multi-Family	1	1.80	1.80	3.07	3.07
		2	5.10	5.10	5.52	7.18
		3	5.10	5.10	5.52	7.18
		4	7.79	7.79	8.10	8.76
		5	11.00	11.00	11.78	13.37
	Mobile Home	1	1.64	1.64	2.79	2.79
		2	4.64	4.64	5.02	6.52
		3	4.64	4.64	5.02	6.52
		4	7.08	7.08	7.36	7.96
		5	10.00	10.00	10.71	12.15
	College On-Campus Housing	1	1.64	1.64	2.79	2.79
		2	4.64	4.64	5.02	6.52
		3	4.64	4.64	5.02	6.52
		4	7.08	7.08	7.36	7.96
		5	10.00	10.00	10.71	12.15
2	Single Family	1	2.97	2.97	3.55	3.55
		2	7.74	7.74	8.37	10.88
		3	7.74	7.74	8.37	10.88
		4	11.21	11.21	12.28	13.28
		5	16.67	16.67	17.86	20.25
	Multi-Family	1	1.66	1.66	2.83	2.83
		2	4.70	4.70	5.09	6.62
		3	4.70	4.70	5.09	6.62
		4	7.18	7.18	7.47	8.08
		5	10.15	10.15	10.87	12.33
	Mobile Home	1	1.51	1.51	2.57	2.57
		2	4.28	4.28	4.63	6.02
		3	4.28	4.28	4.63	6.02
		4	6.53	6.53	6.79	7.35

Table 12: Residential Daily Person Trip Generation Rates

Place Type	Household Type	Household Size	Income			
			< $35K	$35K – $50K	$50K – $75K	> $75K
		5	9.22	9.22	9.88	11.21
	College On-Campus Housing	1	1.51	1.51	2.57	2.57
		2	4.28	4.28	4.63	6.02
		3	4.28	4.28	4.63	6.02
		4	6.53	6.53	6.79	7.35
		5	9.22	9.22	9.88	11.21
3	Single Family	1	2.75	2.75	3.29	3.29
		2	7.17	7.17	7.75	10.08
		3	7.17	7.17	7.75	10.08
		4	10.38	10.38	11.37	12.30
		5	15.44	15.44	16.55	18.76
	Multi-Family	1	1.54	1.54	2.62	2.62
		2	4.36	4.36	4.72	6.13
		3	4.36	4.36	4.72	6.13
		4	6.65	6.65	6.92	7.48
		5	9.40	9.40	10.07	11.42
	Mobile Home	1	1.40	1.40	2.38	2.38
		2	3.96	3.96	4.29	5.58
		3	3.96	3.96	4.29	5.58
		4	6.05	6.05	6.29	6.80
		5	8.54	8.54	9.15	10.38
	College On-Campus Housing	1	1.40	1.40	2.38	2.38
		2	3.96	3.96	4.29	5.57
		3	3.96	3.96	4.29	5.57
		4	6.05	6.05	6.29	6.80
		5	8.54	8.54	9.16	10.38

Note: To account for land use density, in addition to the trips by income and household size, the total households per zone generate an additional 0.93 trips per household.

Source: Fehr & Peers, 2024

Non-Residential Person Trip Generation

The primary source for non-residential person trip generation rates in the model was the 2016 RTP/SCS model, with the vehicle trips converted to person trips using the mode split and persons per vehicle from

the 2012 CHTS. The 2016 RTP/SCS model was based on ITE 9th Edition Trip Generation[4] vehicle trip generation rates, which contains national averages of vehicle trip generation rates for a variety of land uses in what are generally suburban locations. The 2016 RTP/SCS model vehicle trip rates based on the 9th Edition were used rather than starting with rates from the 11th Edition since the travel model rates had been previously calibrated to reflect travel in Butte County, unlike the national data provided directly by ITE. The rates from the 2016 RTP/SCS model were calibrated for major non-residential land uses such as prominent retail centers and institutions within Butte County using a methodology similar to that explained above for residential uses. **Table 13** displays the final non-residential trip rates.

Table 13: Non-Residential Daily Person Trip Generation Rates

Place Type	Land Use Type	Model LU	Units	Person Rate
1	Office	OFF_KSF	Thousand Square Feet	18.05
	Medical Office	MED_KSF	Thousand Square Feet	13.47
	Hospital	HOSP_KSF	Thousand Square Feet	4.07
	Industrial	IND_KSF	Thousand Square Feet	11.81
	Public/Quasi-Public	PQP_KSF	Thousand Square Feet	27.10
	Park	PARK_AC	Acres	1.84
	Neighborhood-Serving Retail	RET_KSF	Thousand Square Feet	43.16
	Region-Serving Retail	RRET_KSF	Thousand Square Feet	54.74
	Hotels	HOTEL_RMS	Rooms	4.10
	K-12 School	K12_STU	Students	3.30
	University	UNIV_STU	Students	1.65
	Community College	CC_STU	Students	1.65*
	Casino (Special Generator)	CASINO_SLT	Slots	4.41
2	Office	OFF_KSF	Thousand Square Feet	18.05
	Medical Office	MED_KSF	Thousand Square Feet	13.47
	Hospital	HOSP_KSF	Thousand Square Feet	4.07
	Industrial	IND_KSF	Thousand Square Feet	11.81
	Public/Quasi-Public	PQP_KSF	Thousand Square Feet	27.10
	Park	PARK_AC	Acres	1.84
	Neighborhood-Serving Retail	RET_KSF	Thousand Square Feet	43.16

[4] *Trip Generation* (9th edition.). (2012). Washington, D.C.: Institute of Transportation Engineers.

Table 13: Non-Residential Daily Person Trip Generation Rates

Place Type	Land Use Type	Model LU	Units	Person Rate
	Region-Serving Retail	RRET_KSF	Thousand Square Feet	54.74
	Hotels	HOTEL_RMS	Rooms	4.10
	K-12 School	K12_STU	Students	3.30
	University	UNIV_STU	Students	1.65
	Community College	CC_STU	Students	1.65*
	Casino (Special Generator)	CASINO_SLT	Slots	4.41
3	Office	OFF_KSF	Thousand Square Feet	17.48
	Medical Office	MED_KSF	Thousand Square Feet	13.14
	Hospital	HOSP_KSF	Thousand Square Feet	3.98
	Industrial	IND_KSF	Thousand Square Feet	11.64
	Public/Quasi-Public	PQP_KSF	Thousand Square Feet	26.88
	Park	PARK_AC	Acres	1.84
	Neighborhood-Serving Retail	RET_KSF	Thousand Square Feet	43.05
	Region-Serving Retail	RRET_KSF	Thousand Square Feet	54.59
	Hotels	HOTEL_RMS	Rooms	4.04
	K-12 School	K12_STU	Students	3.30
	University	UNIV_STU	Students	1.65
	Community College	CC_STU	Students	1.65*
	Casino (Special Generator)	CASINO_SLT	Slots	4.38

* In the model, Community College students and University students are combined together with the same person rate.

Source: Fehr & Peers, 2024.

Commercial Truck Trip Generation

Along with generating person trips rather than total vehicle trips, the commercial truck trips were separated from passenger travel. The trip generation is based on the CSFFM and calibrated to local conditions. The trip generation for aggregated non-residential sectors is shown below in **Table 14**. No additional adjustments are made for commercial truck trip generation for 2024 RTP/SCS.

Table 14: Commercial Truck Daily Trip Generation

Model Industry/Commodity	NAICS 2007	Daily Trip Rate
Total Households	NA	0.61
Total Employees	NA	0.52
Ag/Farm/Fish	11	0.16
Mining	21	0.20
Construction	23	0.20
Manufactured Products	31-325	0.25
Manufactured Equipment	326-33	0.17
Transportation/Communication/Utilities	22, 48 ,492, 493, 51	0.17
Wholesale	42	0.17
Retail Trade	44-45	0.17
Finance, Insurance, Real Estate, Service	52-56, 62, 71, 72, 81	0.07
Education/Govt	491, 61, 92	0.07

Source: Fehr & Peers, 2024.

Person Trip Purposes and Income

Trip generation rates are initially defined for total trips and later split by trip purpose. Each trip has two ends, a "production" and an "attraction." By convention, trips with one end at a residence are defined as being "produced" by the residence and "attracted" to the other use (workplace, school, retail store, etc.), and are called "Home-Based" trips. Trips that do not have one end at a residence are called "Non-Home-Based" trips.

There are seven primary trip purposes used in the BCAG model.

- *Home-Based Work (HBW):* trips between a residence and a workplace, separated into low, medium, and high to improve the commute location by matching jobs and household income
- *Home-Based Shop (HBS):* trips between a residence and a store
- *Home-Based Other (HBO):* trips between a residence and any other destination
- *Work*-Based Other (WO): trips between a workplace and any other destination except a residence
- *Other-Based Other (OO):* trips that do not begin or end at a residence or workplace, such as traveling from a park to a restaurant, or from a retail store to a bank
- *School (HK):* trips to and from a school (K-12)
- *University (HC):* trips to and from a community college or university

The 2012 CHTS data and 2022 StreetLight data were used to determine the appropriate proportion of trips that represent each purpose. The University trip purpose category was added for 2020 RTP/SCS to better represent the travel patterns of students attending CSU Chico and Butte College.

Interregional (IX and XI) Trip Percentages

The interregional factors are based on CHTS for each trip purpose and refined based on StreetLight data to have an improved geographic sensitivity. Each TAZ incorporates an IX and XI percentage for each trip purpose.

Internal/External Trips Interactions

One of the important inputs to a travel model is an estimate of the amount of travel between the study area and neighboring areas outside the model. These I-X/X-I, trips. and have one trip end in the county with the other trip end outside the county. The I-X/X-I percentages were initially estimated for each model trip purpose using the 2012 CHTS data. These estimates were then refined using the county's external station counts. **Table 15** summarizes the proportion of IX and XI trips by purpose for the base year.

Table 15: Percent of Trips by Purpose That are Interregional

Purpose	Model	StreetLight	CHTS[1]
Home-Based Work (HBW)	10.5%	7.7%	15.9%
Home-Based Other (HBO)	8.2%	10.8%	8.8%
Non-Home-Based (NHB)	8.0%	10.3%	11.4%

Note:
[1] The CHTS estimates are from 2012 and are no longer a reasonable benchmark for calibration. Instead, they are useful for understanding how interregional has changed due to major factors such as the pandemic and the shift to more telework and internet shopping.
Source: Fehr & Peers, 2024.

After the number of I-X/X-I trips are estimated, these trips are distributed to the stations around the perimeter of the model area using external station weights. External station weights are based on counts collected at each external station (these are roadway segments at the border of the model area). The number of through trips at each station was subtracted from the count and the remainder was filled in by I-X/X-I trips estimates. The resulting external station weights are presented in **Table 16**.

Table 16: External Station Weights

ID	Description	Weight
1	Hwy 99 – north of Butte County Line	20.40%
2	Cohasset Rd – north of Musty Buck Rd	0.13%
3	Hwy 32 – north of Humboldt Rd	0.66%
4	Humboldt Rd – north of Jonesville Rd	0.01%
5	Hwy 70 – north of Butte County Line	1.45%
6	Oroville Quincy Hwy – north of Haskins Valley Rd	0.13%
7	Forbestown Rd – east of Reservoir Rd	0.24%
8	La Porte Rd – northeast of Robinson Mill Rd	0.18%
9	Loma Rica Rd – south of La Porte Rd	1.01%
10	La Porte Rd – south of Butte County Line	1.61%
11	Hwy 70 – south of Butte County Line	18.80%
12	Larkin Rd – south of Butte County Line	5.50%
13	Hwy 99 – south of Butte County Line	21.59%
14	Pennington Rd – south of Rutherford Rd	0.43%
15	Colusa Hwy – west of Cherokee Canal Rd	1.05%
16	Afton Rd – west of Aguas Frias Rd	0.18%
17	Hwy 162 – west of Butte County Line	2.59%
18	Road Z – south of Road 48	0.40%
19	Ord Ferry Rd – west of Hugh Baber Ln	5.39%
20	Hwy 32 – west of Butte County Line	18.26%

Source: Fehr & Peers, 2024.

Through Trips

Through trips (also called external-external, or X-X trips) are trips that pass through the study area without stopping inside the study area. The major flows of through traffic in Butte County use Hwy 99, Hwy 70, and Hwy 32, with lower volumes of through traffic using other arterials. The CSTDM was the starting point for passenger vehicle trips and the CSFFM for commercial vehicles. The size of these flows was calibrated using StreetLight data and traffic counts collected as part of the model update.

Trip Productions and Attractions Balancing

Local trips (internal-to-internal, or I-I) are trips that both start and end in the model area. One of the basic requirements of any travel model is that the total number of local trips produced is equal to the total number of local trips attracted. It is logically assumed that if a journey begins, it must have an ending somewhere else. If the total productions and attractions are not equal, the model will typically adjust the

attractions to match the productions, thus ensuring that each departing traveler finds a destination. While it is never possible to achieve a perfect match between productions and attractions prior to the automatic balancing procedure, a substantial mismatch in one or more trip purposes may indicate an error in the model land use inputs or trip generation.

Error! Reference source not found. summarizes the local trip productions and attractions from the model for each trip purpose, prior to the application of the automatic balancing procedure. Guidelines published by the Travel Model Validation and Reasonableness Checking Manual [5] and the National Cooperative Highway Research Program (NCHRP) Report 716 [6] suggest that, prior to balancing, the number of productions and attractions should match to within plus or minus 10% (i.e., the production-to-attraction ratio should be within the range of 0.90 to 1.10). The results shown in **Table 17** indicate that the 2022 base year model meets the published guidelines for all trip purposes.

Table 17: Person Trip Production to Attraction Ratios by Purpose

Trip Purpose	Production/Attraction
Home-Based Work (HBW)	1.00
Home-Based Shop (HBS)	1.00
Home-Based Other (HBO)[1]	1.03
Non-Home-Based (NHB)	1.03
Total	1.02

Note:
[1] The trip purposes listed are the broad categories applied in most every travel model. The more specific BCAG trip purposes are subsets of these broader trip purposes and have been aggregated here for ease of comparison. The School, Casino, and University purposes are subsets of the HBO trip purpose.
Source: Fehr & Peers, 2024.

Trip Generation Sensitivity

The BCAG TDF model contains enhancements to better capture local trip making characteristics and provides the ability to test certain policy options for future development scenarios. These features include adjustments for residential and non-residential vacancy rates and adding sensitivity for aging population, the cost of travel, smart growth development, and changes to the transit system.

[5] *Model Validation and Reasonableness Checking Manual* (2nd edition). (2001). Washington, D.C.: U.S. Dept. of Transportation, Federal Highway Administration, Federal Transit Administration, Assistant Secretary for Transportation Policy.
[6] *Travel Demand Forecasting: Parameters and Techniques* (Report 716). (2012). Washington, D.C: Transportation Research Board.

Vacancy Rates

The trip generation sub-model has the ability to reflect varying levels of occupancy for residential and non-residential buildings. However, for this update, BCAG staff elected to provide land use information already adjusted for vacancy. Therefore, the vacancy rate adjustment factors were set to 1.0.

Aging Population

It has long been recognized that households with older residents generate fewer vehicle trips than households where the residents are younger. The reason behind the reduced trip generation is generally thought to be due to the reduced number of work trips, fewer activities requiring travel, and the fact that a portion of this age group cannot drive.

For BCAG model, there is an age of head of household adjustment that applies for each trip purpose and multiplies by the calibrated trip rate to test for potential increases or decreases in travel relative to age. The factor is currently set at 1.0 to represent the 2012 CHTS data as calibrated to represent 2022 conditions in Butte County.

Trip Distribution (Gravity Model)

Once the trip generation step has estimated the number of trips that begin and end in each zone, the trip distribution process determines the specific destination of each originating trip. The destination may be within the zone itself, resulting in an intra-zonal trip. If the destination is outside of the zone of origin, it is an inter-zonal trip. Inter-zonal trips consist of II, IX, and XI trips.

The trip distribution model uses a gravity model equation to distribute trips to all TAZs. This equation estimates an accessibility index for each TAZ based on the number of attractions in each TAZ and the travel time between TAZ. Each attraction TAZ is given its share of productions based on its share of the accessibility index. This process applies to the I-I, I-X, and X-I trips. The X-X trips are added to the trip matrix prior to final assignment.

The gravity model uses the multimodal networks, matches household income locations with job locations by salary, allows for IX and XI trips to vary by individual zone rather than by land use type and trip purpose, and includes more sensitivity to gateway attractiveness by trip purpose. The trip distribution model also takes into account the impact of attractiveness based on vehicles availability to a household, and the accessibility of a location.

Friction Factors

Friction factors, also known as travel time factors, are used in calculating the relative attractiveness of each destination zone based on the travel time between TAZs and the number of potential origins and destinations in each TAZ. These factors are used in the trip distribution stage of the model. The BCAG model friction factors are based on data reported in national modeling reference documents such as

Travel Estimation Techniques for Urban Planning, NCHRP 365 [7] and are updated for base year 2022 to better match trip length and travel time estimated by the model to the data from CHTS and StreetLight.

Vehicle Availability

BCAG Model includes the feature of vehicle availability as an input to both the trip distribution and mode choice. The vehicle availability model is a disaggregate multinomial logit model which predicts the probability of a household owning 0, 1, 2, or 3, or 4+ vehicles based on the variables in **Table 18**.

Table 18: Variables in Vehicle Availability Model

Category	Variable	Description
Cost Variable	Commute Cost Ratio	Average annual commute cost divided by household income
Accessibility Variables	Intersection Density	Intersections per square mile
	Transit Accessibility	Jobs within 30 minutes via transit
	Employment Density	Log of (jobs per developed acre)
Household Demographic Variables	Household Size	Household size 1, 2, 3, 4+
	Household Income	Less than $35K, $35K – $50K, $50K – $75K, Greater than $75K
	Household Residential Unit Type	Single Family, Multi-Family, Mobile Home

Source: Fehr & Peers, 2024.

The commute cost ratio variable is an estimate of the proportion of a household's income required to own vehicles. It is derived from a county-level estimate of per-mile auto ownership costs, tract-level estimates of commuting VMT derived from the EPA's Smart Location Calculator[8], an annualization factor of 250 working days per year, and the household income. The variable is applied on a per-vehicle basis, so that owning no vehicles incurs no cost, owning two vehicles incurs twice the cost of owning one vehicle, and so on. **Table 19** below provides the coefficients of the auto ownership model.

[7] Martin, W. A., & McGuckin, N. A. (1998). *Travel Estimation Techniques for Urban Planning* (Report 365). Washington, DC: National Academy Press.
[8] https://ww2.arb.ca.gov/resources/documents/scs-evaluation-resources

Table 19: Auto Ownership Model Coefficients

	0 Vehicles	1 Vehicle	2 Vehicles	3 Vehicles	4+ Vehicles
Alternative-Specific Constant					
CommuteCostRatio	7.51	3.95	0.00	0.00	0.00
PedOrIntDens	0.009	0	0	-0.004	-0.004
TransitAccessibility (x1000)	0.009	0.010	0	-0.051	-0.112
LogEmpDensity	0.39	0.24	0	0.00	-0.19
RUGroup=RU1	0	0	0	0	0
RUGroup=RU3	1.27	0.53	0	-1.53	-1.53
RUGroup=RU6	0.27	0.27	0	0	0
RUGroup=RU4[1]	1.27	0.53	0	-1.53	-1.53
HH_size=1	-1.16	1.5	0	-3.15	-4.94
HH_size=2	-3.03	-0.42	0	-2.26	-4.19
HH_size=3	-3.37	-0.24	0	-1.34	-3.40
HH_size=4	-4.02	-0.66	0	-1.61	-3.13
HH_size=5+	-3.50	-0.89	0	-1.32	-2.44
HH_inc=IncG1	0	0	0	0	0
HH_inc=IncG2	-1.33	-0.28	0	0.86	0.98
HH_inc=IncG3	-3.87	-0.93	0	1.2	2.35
HH_inc=IncG4	-2.98	-1.55	0	1.55	2.35
HH_inc=IncG5	-4.23	-1.96	0	1.44	2.87

Notes:
1. The coefficients are added for the new land use type College on-campus student housing, and they are the same as the coefficients used for multi-family housing.
Source: Fehr & Peers, 2024.

Note the model uses owning two vehicles as its base, and calculates the relative probability of owning fewer or greater vehicles; thus, the model coefficients describe relative probabilities as in the example below:

$$\ln\left(\frac{Prob(0\ vehicles)}{Prob(2\ vehicles)}\right) = 7.51(CommuteCostRatio) + 0.0093(PedOrIntDensity) + \ ...$$

The coefficients for this model are generally intuitive in direction and scale.

- Higher commuting cost increases the probability of owning 0 or 1 vehicles and decreases the probability of owning 3 or 4 vehicles, as compared to the baseline of 2 vehicles.

- Higher scores for the three accessibility variables, indicating generally better accessibility by non-auto modes, increase the probability of owning 0 vehicles (and sometimes also 1 vehicle) relative to owning 2; and decrease the probability of owning 3 or 4.
- Household income is the demographic variable which has the largest influence in auto ownership. Generally, as incomes go up, probabilities of owning 0 or 1 vehicles go down, and probabilities of owning 3 or 4 vehicles go up.
- Household size behaves in the expected way, with probability of owning 0 or 1 vehicles going down as household size increases and probability of owning 3 or 4 vehicles going up.
- Multi-family unit types are more likely to own 0 or 1 vehicles, and less likely to own 3 or 4 vehicles, than single family. There weren't enough records in the RUG6 "other" category (RV, mobile home, etc.) to distinguish them from single family, and they were generally more similar to single family than multi-family uses, so they share the same coefficients as single family.

An important consideration for future model development is that car sharing and transportation network companies (i.e., UBER, LYFT, etc.) are changing auto availability dynamics and, potentially, long-term auto ownership. As more data becomes available it may be appropriate to modify the auto ownership model to recognize these changes and focus more on auto availability across multiple sub modes and costs per mile. **Table 20** summarizes the autos owned for both the model and the CHTS.

Table 20: Percent of Autos Owned

Autos Owned	Model	CHTS
0	7%	9%
1	39%	37%
2	40%	34%
3+	14%	20%

Source: Fehr & Peers, 2024.

Mode Choice

With the addition of vehicle availability, person trips, and a multimodal network with simplified transit, the model implemented a full multinomial logit mode choice model that was developed for the San Joaquin Valley MPOs due to the similar rural character and transportation options. A nested logit form might have been preferred for theoretical reasons, given the strong relationships among drive, transit, and active modes. However, no satisfactory nested logit models were estimated, likely because of severe constraints on the amount of transit data available. Multinomial logit models produced generally more sensible results and were used instead. The mode choice model is segmented by trip purpose and vehicle availability, using three vehicle availability categories as described in **Table 21**.

Table 21: Vehicle Availability Segments in Mode Choice Model

Name	Description
0veh	Households which own no vehicles
1veh	Households which have one vehicle but more than one person
Others	Households with either one vehicle and one person, or more than one vehicle

Source: Fehr & Peers, 2024.

Table 22 below lists the modes available in the model.

Table 22: Modes Available in Mode Choice Models

Category	Name	Segments Available	Trip Purposes	Description
Auto	da	1Veh, Other	All	Drive-alone
	s2	All	All	Shared ride, 2 persons
	s3	All	All	Shared ride, 3+ persons
Transit	twb	All	All	Transit, walk-access, bus
	tdb	All	All	Transit, drive-access, bus
	twr	All	All but HBK, HBC	Transit, walk-access, rail
	tdr	All	All but HBK, HBC	Transit, drive-access, rail
	sb	All	HBK only	School bus
Active	walk	All	All	Walk
	bike	All	All	Bike

Source: Fehr & Peers, 2024.

The variables used in each of the modes in the choice model are listed in **Table 23** below. Not all variables are used in all trip purposes models. For the accessibility and built environment variables, the table notes whether the variable is measured at the trip production (P) or trip attraction (A). Note that value of time is a direct consequence of the relationship between in-vehicle time and cost. As such, it is not estimated directly but is instead a consequence of the in-vehicle time (IVT) and cost coefficients. For model implementation purposes, only value of time (VOT) is used in the mode choice utility equation; for clarity, both are reported in the tables below.

Table 23: Variables in Mode Choice Models

Variable	Purposes	Description
(Constants)	All	Alternative-specific constants
IVT	All	In-vehicle time
OVT	All	Out-of-vehicle time (access, transfer, egress, and waiting times)
Cost	All	Total cost, including auto operating cost, parking cost and tolls, and transit fares.
VOT	All	Value of time (conversion between cost variables and time variables)
TransitAccess	HBW, WBO, OBO	Jobs available within 30 minutes via transit, decay-weighted (P)
LogEmpDensity	HBW, HBS, HBO	Log (employment density of block group) (A)
IntDensity	HBK, HBC	Pedestrian-oriented intersection density (A)

Source: Fehr & Peers, 2024.

Home-Based Work

Table 24 lists model coefficients for HBW segments. Drive-alone was used as a reference mode for all trip purposes including the 0-vehicle segment where this mode is not permitted. In this segment, utility calculations were carried out without the drive-alone mode.

Table 24: HBW Mode Choice Model Coefficients

Variable	Mode	0-Vehicle	1-Vehicle, 2+ person HH	All Others
Constant	da	-0.16	0.53	2.265
	s2	0.6	-0.06	-0.32
	s3	0	-3	-3.3
	twb	2.614	-1.26	-1.899
	tdb	1.361	-1.26	-2.866
	twr	2.614	-1.26	-1.899
	tdr	1.361	-1.26	-2.866
	bike	1	-3	-3.5
	walk	0.974	-3.633	-3.822
IVT	All	-0.03	-0.03	-0.074
OVT	All	-0.06	-0.06	-0.148
OVT/IVT	All	2	2	2
Cost	All	-0.004	-0.003	-0.005
VOT	All	6.5394	7.56	11.34

Table 24: HBW Mode Choice Model Coefficients

Variable	Mode	0-Vehicle	1-Vehicle, 2+ person HH	All Others
LogEmpDensity	da	0	0	0
	s2	-0.005	-0.005	0
	s3	-0.02	-0.02	0
	twb	0.04	0.04	0.025
	tdb	0.04	0.04	0.025
	twr	0.04	0.04	0.025
	tdr	0.04	0.04	0.025
	bike	0.03	0.03	0
	walk	0.039	0.039	0.039
TransitAccess	da	0	0	0
	s2	0.013	0.013	0.005
	s3	0.013	0.013	0.005
	twb	0.03	0.027	0.013
	tdb	0.03	0.027	0.013
	twr	0.03	0.027	0.013
	tdr	0.03	0.027	0.013
	bike	0.03	0.031	0.015
	walk	0.04	0.031	0.015

Source: Fehr & Peers, 2024.

Home-Based Shop

Table 25 below lists model coefficients for HBS segments. Drive-alone was used as a reference mode for the 1-vehicle and 2-vehicle segments, while walk was used as a reference mode for the 0-vehicle segment.

Table 25: HBS Mode Choice Model Coefficients

Variable	Mode	0-Vehicle	1-Vehicle, 2+ person HH	All Others
Constant	da	-0.2	-0.1	0
	s2	-0.5	-0.7	-0.9
	s3	-1.5	-1.6	-1.8
	twb	-4.036	-3.901	-1.915
	tdb	-3.249	-3.114	-2.747
	twr	-4.036	-3.901	-1.915
	tdr	-3.249	-3.114	-1.959
	bike	-1	-2	-3
	walk	-2	-2	-2
IVT	All	-0.035	-0.035	-0.03
OVT	All	-0.088025	-0.088025	-0.07545
OVT/IVT	All	2.515	2.515	2.515
Cost	All	-0.004	-0.001	-0.001
VOT	All	6.08	16.62	18
LogEmpDensity	da	0	0	0
	s2	0.506	0.506	0.506
	s3	0.408	0.408	0.408
	twb	0.5	0.5	0.5
	tdb	0.5	0.5	0.5
	twr	0.5	0.5	0.5
	tdr	0.5	0.5	0.5
	bike	0.506	0.506	0.506
	walk	0.5	0.178	0.005

Source: Fehr & Peers, 2024.

Home-Based School (K-12)

Table 26 below lists model coefficients for SCHOOL segments. The reference mode for the 0- and 1-vehicle segments is walk; the reference mode for the 2-vehicle segment is shared ride 3.

Table 26: SCHOOL Mode Choice Model Coefficients

Variable	Mode	0-Vehicle	1-Vehicle, 2+ person HH	All Others
Constant	da	0	0	0
	s2	2	1	-0.5
	s3	2.813	2.884	1.033
	twb	0.614	-5.873	-6.902
	tdb	-7.06	-8.09	-9.119
	twr	0.614	-5.873	-6.902
	tdr	-7.06	-8.09	-9.119
	bike	1.306	1.75	1.01
	walk	5.383	5.076	4.206
	sb	1.306	1.75	1.01
IVT	All	-0.025	-0.025	-0.025
OVT	All	-0.05	-0.05	-0.05
OVT/IVT	All	2	2	2
Cost	All	-0.005	-0.003	-0.002
VOT	All	3	6	9
IntDensity	da	0	0	0
	s2	0.006	0.006	0.006
	s3	0.008	0.008	0.008
	twb	0.008	0.008	0.008
	tdb	0	0	0
	twr	0.008	0.008	0.008
	tdr	0	0	0
	bike	0.008	0.008	0.008
	walk	0.004	0.004	0.004
	sb	0	0	0

Source: Fehr & Peers, 2024.

Home-Based University

Table 27 below lists model coefficients for UNIV segments. Because of the very small number of trips in the household survey data, all vehicle ownership segments were pooled for model estimation purposes, with distinctions between segments left for adjustment during model calibration. Drive-alone was used as a reference mode. In the 0-vehicle segment, utility calculations were carried out without the drive-alone mode.

Table 27: UNIV Mode Choice Model Coefficients

Variable	Mode	0-Vehicle	1-Vehicle, 2+ person HH	All Others
Constant	da	0	0	0
	s2	-2.5	-2.4	-2.3
	s3	-4	-5	-5.5
	twb	-1.44	-1.9	-2.36
	tdb	-5.919	-6.379	-6.839
	twr	-1.44	-1.9	-2.36
	tdr	-5.919	-6.379	-6.839
	bike	-6	-7	-8
	walk	-8.494	-7.299	-8.494
IVT	All	-0.025	-0.025	-0.025
OVT	All	-0.05	-0.05	-0.05
OVT/IVT	All	2	2	2
Cost	All	-0.005	-0.003	-0.002
VOT	All	3	6	9
IntDensity	da	0	0	0
	s2	0.004	0.004	0
	s3	-0.019	-0.019	0
	twb	0.004	0.004	0
	tdb	0	0	0
	twr	0	0	0
	tdr	0	0	0
	bike	0.005	0.005	0.005
	walk	0.005	0.005	0.005

Source: Fehr & Peers, 2024.

Home-Based Other

Table 28 below lists model coefficients for HBO segments. Drive-alone was used as a reference mode for the 2-vehicle segment, while walk was used as a reference mode for the 0- and 1-vehicle segments.

Table 28: HBO Mode Choice Model Coefficients

Variable	Mode	0-Vehicle	1-Vehicle, 2+ person HH	All Others
Constant	da	-0.2	-0.1	0
	s2	-0.5	-0.7	-0.9
	s3	-1.5	-1.6	-1.8
	twb	-4.036	-3.901	-1.915
	tdb	-3.249	-3.114	-2.747
	twr	-4.036	-3.901	-1.915
	tdr	-3.249	-3.114	-1.959
	bike	-1	-2	-3
	walk	-2	-2	-2
IVT	All	-0.035	-0.035	-0.03
OVT	All	-0.088025	-0.088025	-0.07545
OVT/IVT	All	2.515	2.515	2.515
Cost	All	-0.004	-0.001	-0.001
VOT	All	6.08	16.62	18
LogEmpDensity	da	0	0	0
	s2	0.506	0.506	0.506
	s3	0.408	0.408	0.408
	twb	0.5	0.5	0.5
	tdb	0.5	0.5	0.5
	twr	0.5	0.5	0.5
	tdr	0.5	0.5	0.5
	bike	0.506	0.506	0.506
	walk	0.5	0.178	0.005

Source: Fehr & Peers, 2024.

Work-Based Other

Table 29 below lists model coefficients for WO segments. Walk was used as a reference mode for the 0- and 1-vehicle segments; drive-alone was used as a reference mode for the 2-vehicle segment.

Table 29: WO Mode Choice Model Coefficients

Variable	Mode	0-Vehicle	1-Vehicle, 2+ person HH	All Others
Constant	da	0	0	0
	s2	-1.53	-1.682	-1.915
	s3	-1.77	-1.798	-1.939
	twb	-4.036	-3.901	-1.915
	tdb	-3.249	-3.114	-2.747
	twr	-4.036	-3.901	-1.915
	tdr	-3.249	-3.114	-1.959
	bike	-4.704	-5.343	-7.99
	walk	-2.62	-2.553	-2.665
IVT	All	-0.035	-0.035	-0.03
OVT	All	-0.088025	-0.088025	-0.07545
OVT/IVT	All	2.515	2.515	2.515
Cost	All	-0.004	-0.001	-0.001
VOT	All	6.08	16.62	18
TransitAccess	da	0	0	0
	s2	0	0	0
	s3	0	0	0
	twb	0.023	0.023	0.023
	tdb	0.023	0.023	0.023
	twr	0.023	0.023	0.023
	tdr	0.023	0.023	0.023
	bike	0.03	0.03	0.03
	walk	0.04	0.04	0.04

Source: Fehr & Peers, 2024.

Other-Based Other

Table 30 below lists model coefficients for OO segments. Walk was used as a reference mode for the 0- and 1-vehicle segments; drive-alone was used as a reference mode for the 2-vehicle segment.

Table 30: OO Mode Choice Model Coefficients

Variable	Mode	0-Vehicle	1-Vehicle, 2+ person HH	All Others
Constant	da	0	0	0
	s2	2.351	0.838	0.211
	s3	2.245	0.507	0.135
	twb	2.614	-1.26	-1.899
	tdb	1.361	-1.26	-2.866
	twr	2.614	-1.26	-1.899
	tdr	1.361	-1.26	-2.866
	bike	0.974	-3.633	-3.822
	walk	4.293	0.911	-0.258
IVT	All	-0.03	-0.03	-0.074
OVT	All	-0.06	-0.06	-0.148
OVT/IVT	All	2	2	2
Cost	All	-0.004	-0.003	-0.005
VOT	All	5.19	6	9
TransitAccess	da	0	0	0
	s2	-0.007	-0.007	0
	s3	-0.01	-0.01	0
	twb	0.04	0.04	0.025
	tdb	0.04	0.04	0.025
	twr	0.04	0.04	0.025
	tdr	0.04	0.04	0.025
	bike	0.03	0.03	0
	walk	0.039	0.039	0.039

Source: Fehr & Peers, 2024.

Table 31 summarizes the aggregated mode choice for both the model and the CHTS. Note that while the model produces results for each individual mode by purpose, due to sample size in the CHTS the aggregated mode shares are used for validation. Prior to using the detailed mode choice by purpose and mode, a sub-area validation and potential calibration should be undertaken.

Table 31: Mode Choice Results

Mode	Model	CHTS
Drive-alone	47.4%	43%
Shared Ride	43.6%	46%
Transit	1.9%	3%
Walk/Bike/Other	7.1%	8%

Note: Other includes school bus, taxi, and other specialized modes accounted for in the CHTS.
Source: Fehr & Peers, 2024.

Trip Assignment

The trip assignment process determines the route each vehicle trip takes from a particular origin to a particular destination. It uses an iterative, capacity-restrained assignment routine to determine a travel path that minimizes travel time, while considering congestion delays caused by the other simulated trips in the model. The model added new capabilities to account for the number of passengers in the car for passenger trips, the type of truck being used (small, medium, and large) for commercial trips, and the potential for roadway pricing on a roadway segment on a per mile basis or spot location for a single charge.

The general assignment process includes the following steps.

- Assign all trips to the links along their selected paths
- After all assignments, examine the volume on each link and adjust its impedance based on the volume-to-capacity ratio
- Repeat the assignment process for a set number of iterations or until specified criteria related to minimizing travel delays are satisfied

Calibration of the roadway network included modification of the centroid connectors to more accurately represent the location that traffic accesses local roads; adjustment of speeds from posted speed limits to reflect the attractiveness of the route and the prevailing speed of traffic; and adjustment of capacities to reflect the attractiveness of the route.

Time Periods

The model estimates travel for the average weekday (Monday through Friday). The daily roadway volumes are aggregated from the AM and PM peak period, and Mid-day and Evening off-peak period assignments. Descriptions of each assignment time period are presented in **Table 32**. The specific time periods represented in the model were developed by reviewing the distribution of existing traffic counts across a 24-hour period as well as reviewing the time period distributions of travel models in neighboring jurisdictions (i.e., NCTC, SACOG, TRPA).

Table 32: Time Periods

Description	Duration	Time
AM Peak Period	3 Hours	6:00 – 8:59 AM
Mid-day Period	7 Hours	9:00 AM – 3:59 PM
PM Peak Period	3 Hours	4:00 – 6:59 PM
Off-Peak Period	11 Hours	7:00 PM – 5:59 AM
AM Peak Hour	1 Hour	7:00 – 7:59 AM
PM Peak Hour	1 Hour	5:00 – 5:59 PM

Source: Fehr & Peers, 2024.

Turn Penalties

Turn penalties are used to prohibit or add delay to certain turning movements. The BCAG model prohibits traffic from making turns across impassable medians. In addition, the model may prohibit U-turns at some locations to avoid counterintuitive traffic routing. Turn penalties may be in effect during the entire day, during one or all peak periods, or only at the peak hour level. Currently the turn penalties apply to all vehicles and there are no specific truck only turn penalties or prohibitions.

Vehicle Miles of Travel

A major focus of recent transportation related legislation in California focuses on VMT. In addition to Air Quality Conformity determinations, SB 375 and subsequent legislation such as SB 743 have highlighted the need to have a reliable method for forecasting VMT for regional planning. The traditional reasonableness check for VMT is to compare the regional model to HPMS for VMT on the roadways with the model area. **Table 33** below shows that the VMT for the model is about 13.6% lower than Year 2019 HPMS, 5.5% higher than Year 2021 HPMS, and 9% higher than Year 2022 HPMS, which exceeds the 3% suggested error.

However, the HPMS estimates do not match traffic count or StreetLight traffic volume estimate trends between 2019 and 2022. While HPMS VMT estimates appear to capture changes due to the COVID 19 pandemic effects in terms of the decrease between 2019 and 2021. No rebound effect is shown for 2022. The traffic counts and StreetLight estimates both show the expected rebound effect, which also includes the active re-development of the City of Paradise after the Camp Fire. Hence, the model-wide VMT estimate for Year 2022 is considered reasonable.

Table 33: Model-wide VMT

Year	HPMS	Model	% Deviation	% Through trip VMT
2019	5,349,710	4,620,750	-13.6	1.9%
2021	4,379,640		5.5%	
2022	4,239,790		9.0%	

Note:
HPMS estimates from 2019, 2021 and 2022 for all roadways in Butte County
Source: Fehr & Peers, 2024.

Transit Forecasting

Although the simplified representation of transit in terms of access and headway is validated at the regional mode share level, the mode choice and distribution processes allow for evaluation of mode share at the zone-to-zone and individual zone levels. Interregional transit must be done off-model. The regional mode share for transit from the travel model and CHTS are shown in **Table 31.**

4 Model Validation

Model validation is the term used to describe model performance in terms of how closely the model's output matches existing travel data in the base year. The extent to which model outputs match existing travel data validates the model algorithms and inputs.

Traditionally, most model validation guidelines have focused on the performance of the trip assignment function in accurately assigning trips to the roadway network. This method is called static validation, and it remains the most common means of measuring model's ability to replicate base year observed conditions.

Models, however, are seldom used for static applications. By far the most common use of models is to forecast how a change in inputs would result in a change in traffic conditions. Therefore, another test of a model's accuracy focuses on the model's ability to predict realistic differences in outputs as inputs are changed. This method is referred to as dynamic validation. This section describes the highest-level validation checks that have been performed for the model.

Static Validation

The 2024 *California Regional Transportation Plan Guidelines* [9], contains the following specific static validation criteria and thresholds.

- *At least 75 percent of the roadway links for which counts are available should be within the maximum desirable deviation*, which ranges from approximately 15 to 60 percent depending on total volume (the larger the volume, the less deviation is permitted).
- *A correlation coefficient of at least 0.88* – The correlation coefficient estimates the overall level of accuracy between observed traffic counts and the estimated traffic volumes from the model. These coefficient ranges from 0 to 1.0, where 1.0 indicates that the model perfectly fits the data.
- *The percent root mean squared error (%RMSE) below 40%* – The %RMSE is the square root of the model volume minus the actual count squared, divided by the number of counts. In other words, it is the average of all the link-by-link percent differences, and it is an indicator of how far the model volumes differ from the counts, on a link-by-link average, expressed as a percent. It is a measure similar to standard deviation in that it assesses the accuracy of the entire model.

In addition to these criteria, the model-wide volume-to-count ratio was checked against a desired maximum threshold of no more than a 10 percent deviation. The static validation results for the model are show in **Table 34** and reveal that the model passed all thresholds for daily and closed to the other threshold for AM and PM peak hour. It is important to pre-validate the model with local counts if it is

[9] *California Regional Transportation Plan Guidelines.* (2024). Sacramento, CA: California Transportation Commission.

used for a focus-area project. Further refinement of the access point of centroid connectors can help with focus-area validation.

Table 34: Results of Model Validation

Validation Item	Criterion of Acceptance	Daily	AMPH	PMPH
Model-wide Volume-to-Count Ratio	Within ± 10%	0.99	0.97	1.00
Percent of Links Within Deviation Allowance	At Least 75%	76%	82%	83%
Correlation Coefficient	At Least 88%	96%	90%	93%
RMSE	40% or Less	37%	47%	41%

Source: Fehr & Peers, 2024.

Dynamic Validation and CARB Model Sensitivity Tests

The tests below were conducted to evaluate the functionality of the model directly related to the scenarios being evaluated as part of the 2024 RTP/SCS, and to provide both BCAG and CARB information for determining the capabilities and sensitivity to the different features of the model. The results of the dynamic validation do not fully match with static validation. Static validation was slightly adjusted after the dynamic validation was done. Based on our conversation with CARB on February 3rd, 2023, the model dynamic sensitivity test for active transportation and transit enhancement was not repeated for the 2024 RTP/SCS, as similar testing was performed for the 2020 RTP/SCS. Since no major structural changes were made to the BCAG model between the 2020 and 2024 RTP/SCS, the dynamic test results documented for 2020 RTP/SCS are expected to yield similar results as previously documented.

Beyond what was documented for the 2020 RTP/SCS, and as recommended by CARB, short-term induced vehicle travel, and additional land use sensitivity tests were conducted to evaluate how the model responds to potential strategies for the 2024 RTP/SCS.

Induced Vehicle Travel

The balance between traveler convenience and increased auto dependency is at the core of many legislative initiatives in California. MPOs expected to manage congestion while also reducing VMT. As such, induced vehicle travel effects are an essential consideration in forecasting VMT especially when future conditions included through expansion of roadway capacity. To evaluate the model sensitivity to induced vehicle travel, short-term effects of increased roadway capacity listed below were evaluated by comparing different combinations of roadway network and socioeconomics.

Short-term responses

1. New vehicle trips that would otherwise would not be made

2. Longer vehicle trips to more distant destinations
3. Shifts from other modes to driving
4. Shifts from one driving route to another

Long-term induced vehicle travel responses listed below are not directly included in the model. Instead, the model's inputs would have to be modified to capture these changes.

5. Changes in land use development patterns (these are often more dispersed, low-density patterns that are auto dependent)
6. Changes in overall growth

Short-Term Induced Vehicle Travel

Short-term induced travel is caused by the immediate change in speeds and travel when a new roadway capacity expansion project is open to traffic (i.e. a Build compared to a No Build scenario). To reflect the short-term induced vehicle travel, additional lane miles were added to the base year roadway network to assess the effect on VMT. Based on CARB's research on induced travel [10] , two tests were developed to evaluate how the model responds to short-term induced vehicle travel resulting from capacity changes on state highway facilities.

- *Test 1* added one lane in each direction on SR 70 between Ophir Road and SR 149, resulting in an 18-lane mile increase.
- *Test 2* added one lane in each direction on SR 99 between SR 149 and Garner Ln, resulting in a 51-lane mile increase.

Full model runs are conducted for both tests, which may overstate the short-term effects of these capacity increases because work and school locations would not realistically change.

Based on the 2024 RTP/SCS 2022 base year run assignment results, SR 70 is operating at near free-flow conditions, with a volume-to-capacity (VC) ratio between 0.3 and 0.7. In contrast, SR 99 is experiencing congestion, with a VC ratio ranging from 0.3 to 1.2, and about 37% of the segment operating above 0.8. Thus, these two state route segments were selected for the tests to understand how the starting congestion context influences the outputs. As shown in **Table 35**, the VMT changes for both tests are in the expected direction, and the differences in short-term elasticity align with the model test setup.

For Test 1, adding new lane miles on SR 70 has a limited impact on total VMT, which is consistent with the low levels of congestion on SR 70 and no travel time benefit of the network modification. However, for Test 2, where additional lane miles were added to the more congested SR 99, the total VMT change is significantly higher than in Test 1. This outcome aligns with the expected response to increased roadway capacity on congested facilities. Therefore, the model output demonstrates an appropriate sensitivity to

[10] https://ww2.arb.ca.gov/sites/default/files/2020-06/Impact_of_Highway_Capacity_and_Induced_Travel_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf

short-term induced travel in terms of the direction of change. However, the ARB research on short-term induced effect size suggests a reasonable range of 0.1 to 0.6. The lower values reported for the BCAG model may be reasonable given that existing congestion in the county is not sufficient to suppress vehicle trip making given that the model's calibrated and validated rates are similar to ITE trip rates from suburban areas where trip making occurs at full demand levels with little to no constraints due to congestion.

Table 35: Short-Term Induced Vehicle Travel Elasticity Check

Scenarios	Base Year	Test 1	Change	Test 2	Change
Lane Miles	392	410	-4.82%	443	-13.05%
Total VMT	2,804,315	2,804,683	-0.01%	2,812,936	-0.31%
Model VMT Change	-	368		8,621	
Short Term Elasticity	-	0.003		0.024	

Note:
1. The total lane miles and total VMT calculations include only the Federal Highway Administration (FHWA) functional classification (FC) 1-3 roadway facilities in Butte County. This approach is consistent with the discussion on the impact of highway capacity and induced travel in estimating short-term induced VMT. https://dot.ca.gov/programs/research-innovation-system-information/office-of-highway-system-information-performance/functional-classification

Source: Fehr & Peers, 2024.

Long-Term Induced Vehicle Travel

Long-term induced vehicle travel effects consider the influence on land use and growth patterns over time. Travel models are typically used to compare a Build and No Build condition and combine the influence of land use, demographics, socioeconomic conditions, and travel. As such, they produce forecasts of short-term induced vehicle travel effects. For long-term induced vehicle travel effects, the model land use and trip generation rates would need to be changed for each alternative. Alternatively, an off-model elasticity method such as that applied through California induced travel calculator[11] developed by National Center for Sustainable Transportation Center can be used.

Auto Operating Cost

The recommended CARB auto operating cost (AOC) methodology changed from including only petroleum-based vehicles to all energy sources. To test model sensitivity to the changes, the auto operating cost is increased by 20% from what was recommended based on the updated method. The published literature presents the demand for fuel or the VMT and has only the impact of gas price not total auto operating cost as used in the model to determine auto ownership, distribution, travel mode, and route choice. The literature reports a short-term elasticity of VMT change relative to fuel price of -0.24 for low-income groups to -0.40 for high income groups.

[11] California Induced Travel Calculator: https://travelcalculator.ncst.ucdavis.edu/

Table 36 below shows the results for the base year with a similar VMT elasticity in both magnitude and direction. The negative on the elasticity indicates the VMT changes in the opposite direction than the auto operating cost. Although the magnitude of change is less than the expected range for fuel price, the recommended CARB parameter of auto operating cost accounts for more than fuel price and the past literature based on empirical data does not account for the non-petroleum vehicles currently included in the auto operating cost. As the fuel price decreases due to more efficient vehicles, the fixed costs become a larger percentage of the auto operating cost. Since the model is not overly sensitive to auto operating cost but does show reasonable sensitivity, the model is appropriate for RTP/SCS scenarios that do not include change of fleet or fuel sources. If the scenario being evaluated changes the auto operating cost or fuel cost as a scenario specific policy, it is recommended that additional calibration be considered. As noted in the CARB technical document, these results highlight the importance of considering equity impacts in analyzing the effects of changes in gas prices (and gas taxes).

Table 36: Auto Operating Cost Elasticity Check

2022	Updated	Test	Change
AOC	21.38	25.66	20.00%
Total VMT	4,825,405	4,821,531	-0.08%
Model Elasticity	-0.004		
Literature Elasticity [1]	-0.24 to -0.40		

Note:
1. The CARB research for short-term elasticity only accounts for the fuel cost and excludes the fixed and maintenance costs.
Source: Fehr & Peers, 2024.

Land Use Tests

The BCAG Model has been developed to be used as a tool to evaluate land use scenarios in planning efforts such as EIRs, City General Plans, and the Regional Transportation Plan. The specific dynamic validation tests completed for this model update are listed below.

- Add 10, 100, and 1000 dwelling units to a TAZ in Eastern Chico
- Add 10, and 100 thousand square feet of retail to a TAZ in City of Oroville
- Shift growth out of City of Paradise to Eastern Chico with 500 single family dwelling units
- Adjust income levels by increasing high income households and reducing low-income households with total households remaining the same for TAZs in City of Chico, Paradise, Oroville, Biggs, and Gridley
- Change land use ratio by adding 500 multi family dwelling units and removing 500 single family dwelling units in City of Oroville

The first two tests are generic model dynamic tests designed to ensure that the model consistently produces accurate trip generation estimates for different land use inputs. The key model in these dynamic validation tests is the number of daily vehicle trips (VT) generated. These tests are intended to verify that the model output changes in the correct direction and magnitude. The dynamic validation results for the land use changes, summarized in **Table 37,** indicate that the model responds appropriately to variations in both residential and non-residential land uses. For example, when altering residential uses, the overall vehicle trip generation remains stable across the entire range, yielding reasonable results (i.e., 4.6 to 5.0 vehicle trips per household). Additionally, the change in trip generation at the TAZ level aligns with expectations, with increase or decrease corresponding to changes in the number of households. The magnitude of vehicle trip generation at the TAZ level is also reasonable, considering the socioeconomic characteristics of the test area located in Chico.

Table 37: Land Use Sensitivity Check

Land Use Change	Unit Change	VT Change	VT Change/Unit Change
Residential (Dus)	+10	46.29	4.63
	+100	495.50	4.96
	+1000	4987.53	4.99
	+10	263.83	26.38
	+100	2601.84	26.02

Source: Fehr & Peers, 2024.

The latter three land use dynamic tests were requested by CARB to further evaluate the model's sensitivity to different types of land use changes and to better understand how the location of these land uses affects the model results.

The dynamic test results for land use shifts are summarized in **Table 38**. In this scenario, 500 single-family dwelling units were relocated from the City of Paradise to the City of Chico. The results indicate a decrease in auto trips and an increase in non-auto trips in the mode split outputs, along with a reduction in total VMT. These changes in the model outputs align with expectations, reflecting the impact of relocating household developments to a more urbanized area like the City of Chico.

Table 38: Land Use Allocation

Trips/VMT	Base Year	Land Use Allocation	Change	Change %
Person Trips - Drive Alone	332,946	332,616	-330	-0.10%
Person Trips - Shared Ride 2	228,781	228,852	71	0.03%
Person Trips - Shared Rid 3+	179,348	179,376	28	0.02%
Person Trips - Transit/Walk/Bike/Other	84,521	85,308	787	0.93%
Person Trips – Total	825,596	826,152	+556	0.07%
Passenger Vehicle Trips	551,168	550,840	-328	-0.06%
Total VMT	4,897,545	4,895,916	-1,629	-0.03%

Source: Fehr & Peers, 2024.

The dynamic test results for income level adjustments are summarized in **Table 39**. When households were shifted from a lower income group to a higher income group, the total number of passenger vehicle trips increased, but total VMT decreased. Higher-income households tend to generate more vehicle trips but travel shorter distances, as they often have the option to live closer to their desired destinations. The model results demonstrate appropriate sensitivity to these income level adjustments.

Table 39: Income Adjustments

Trips/VMT	Base Year	Income Adjustments	Change	Change %
Person Trips - Drive Alone	332,946	333,317	371	0.11%
Person Trips - Shared Ride 2	228,781	228,891	110	0.05%
Person Trips - Shared Rid 3+	179,348	179,441	93	0.05%
Person Trips - Transit/Walk/Bike/Other	84,521	84,510	-11	-0.01%
Person Trips – Total	825,596	826,159	+563	0.07%
Passenger Vehicle Trips	551,168	551,622	454	0.08%
Total VMT	4,897,545	4,896,748	-797	-0.02%

Source: Fehr & Peers, 2024.

The final land use dynamic test involves adjusting the residential land use ratio by shifting single-family dwelling units to multi-family dwelling units. The model results are summarized in **Table 41.** As discussed in the trip generation section, the model's trip generation considers various factors such as land use type, household size, household income level, auto ownership, and more. Rather than relying on a single trip generation rate, the model accounts for the complex nature of socioeconomic data.

With the adjustment in the residential land use ratio, there is a reduction in the total number of person trips and passenger vehicle trips, which is similarly reflected in the total VMT. Since multi-family households have a lower trip generation rate compared to single-family households, the decrease in person trips, vehicle trips, and VMT aligns with the land use ratio adjustments. This demonstrates the model's sensitivity to changes in residential land use ratios.

It's important to note that when applying the model to residential land use projects, additional adjustments should be made for household size, income level, and other relevant inputs.

Table 40: Residential Land Use Ratio Adjustments

Trips/VMT	Base Year	Ratio Adjustments	Change	Change %
Person Trips - Drive Alone	399,588	398,714	-873	-0.22%
Person Trips - Shared Ride 2	246,470	246,044	-425	-0.17%
Person Trips - Shared Rid 3+	108,753	108,631	-122	-0.11%
Person Trips - Transit/Walk/Bike/Other	71,236	71,166	-70	-0.10%
Person Trips - Total	826,046	824,556	-1,490	-0.18%
Passenger Vehicle Trips	590,960	589,848	-1,111	-0.20%
Total VMT	4,745,942	4,737,101	-8,841	-0.19%

Source: Fehr & Peers, 2024.

5 Future Year Model

This section describes the future year model data that were developed, with the following section combining the input data into scenarios for the 2024 RTP/SCS. The inputs that were developed for the future year model include the land use, transportation system, and interregional travel.

Future Land Use

Once the base year model calibration and validation was complete, Fehr & Peers received TAZ growth projections provided by BCAG staff and developed one future year (2045) and one interim (2035) model scenario. **Table 41** reports the land use totals for the base year, interim year, and future year, along with the growth projections.

Table 41: Model Land Use Totals by Scenario Year

Land Use Type	Units	2022	2035	2045
Population	People	197,020	236,433	243,499
Single Family Residential	DU	49,798	58,911	60,522
Multi-Family Residential	DU	25,305	32,441	33,822
Mobile Home Residential	DU	9,055	9,811	9,844
Office	KSF	6,593	8,630	8,677
Medical Office	KSF	2,029	2,558	2,558
Hospitals	KSF	951	1,142	1,148
Industrial	KSF	12,903	15,729	15,729
Public/Quasi-Public	KSF	2,333	2,874	2,939
Park	Acres	491	526	526
Neighborhood-Serving Retail	KSF	11,060	11,764	11,761
Regional-Serving Retail	KSF	884	965	965
Hotels	Rooms	2,270	2,800	2,815
K-12 School	Students	29,040	31,031	31,195
University	Students	12,869	17,892	18,886
Community College	KSF	12,185	17,416	17,508
Casino (CASINO_SLT)	Slots	1,450	1,950	1,974
On Campus Student Housing	Dwelling Units	606	1,098	1,098

Source: BCAG, 2024 RTP/SCS Land Use Forecast.

Future Transportation System

The master network contains the planned and programmed transportation improvements for roadway and bike/pedestrian facilities with attributes related to the number of lanes, facility type, and type of travel allowed to use the facility along with scenario year details. The TAZ file contains the future transit accessibility and headway representing the simplified transit approach described previously. The list of planned and programmed projects can be found in **Appendix C**. It should be noted that this is not a complete listing of projects included in the 2024 RTP/SCS, rather, only projects which include changes to roadway capacity, effect the volume of the roadways, relate to bike/pedestrian facilities, or transit system characteristics.

Future Interregional Travel

For the future year, the production and attraction ratio for all purposes were within the 10% guideline for 2045, and minor imbalance was observed for home-based work trips for 2035 (12% difference between production and attraction). Compared to the base year, the future year job-housing balance remains nearly the same, but the distribution of employment types is significantly different. With the continued increase in online shopping, the growth in retail land use is relatively smaller than in other non-residential land use types, reflecting changes in the interregional trip percentages used for the future scenarios. The adjusted interregional trip percentages remain consistent across the future scenarios.

6 Alternatives Analysis

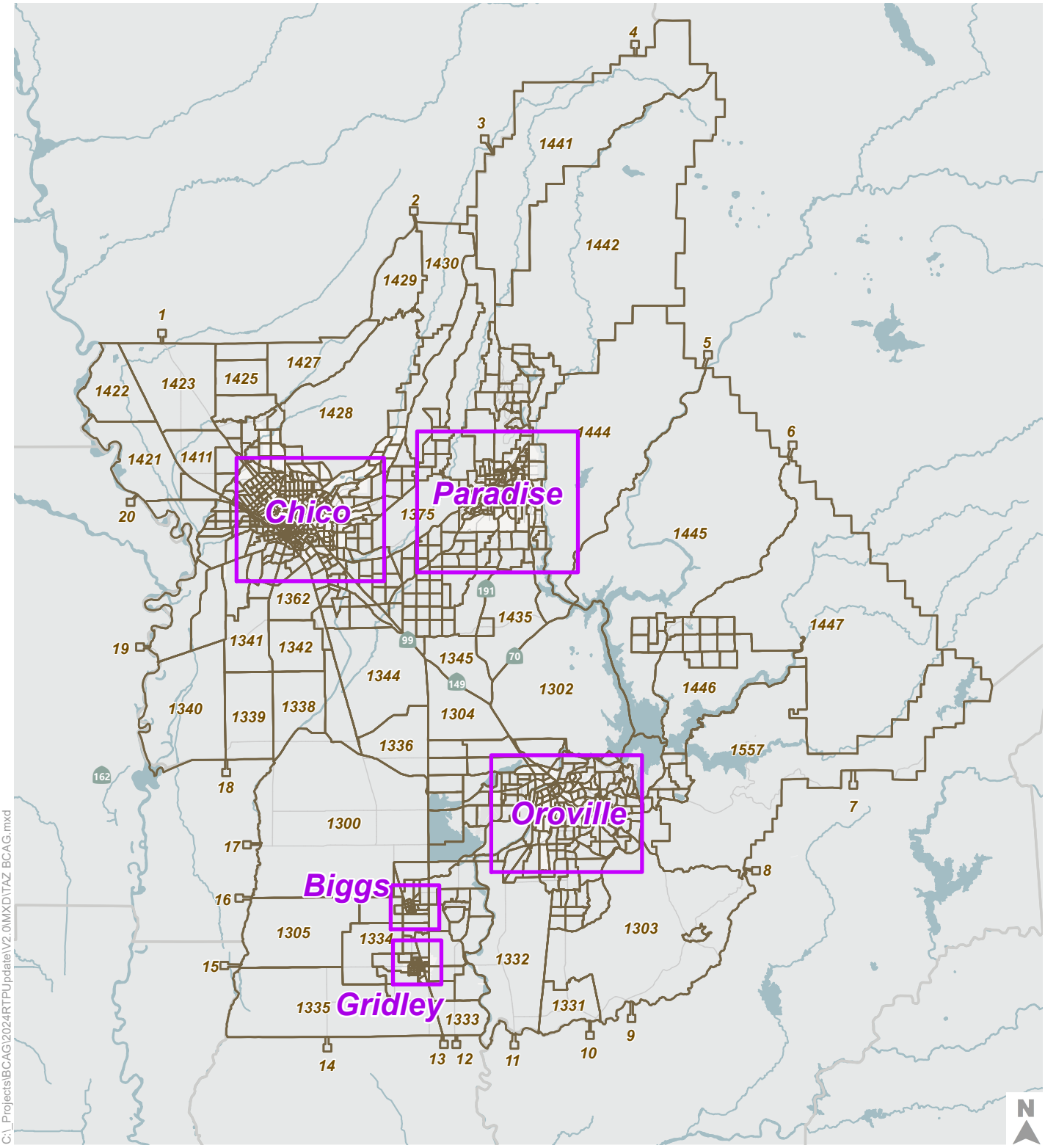
This section contains a quantification of strategies related to reducing Vehicle Miles Traveled (VMT) including transportation demand management (TDM) and pricing for the scenarios evaluated as part of the air quality conformity and RTP/SCS. This information can be used to evaluate related greenhouse gas (GHG) reductions, the air quality conformity determination, and the RTP/SCS EIR. A summary of the roadway, transit and bike projects considered in each alternative, along with the corresponding model results, can be found in **Appendix D**. The technical methodology employed in developing the land use allocation model, which was used to create the land use inputs for each alternative, is documented in the *Butte County Association of Governments Technical Methodology for Preparing 2024 RTP/SCS Land Use Allocation* (BCAG, 2024). Four land use scenarios were developed for Year 2035, and the land use details are summarized in **Table 42.**

Table 42: Model Land Use for 2035 Alternatives

Land Use Type	Units	S1 (2035)	S2 (2035)	S3 (2035)	S4 (2035)
Population	People	251,863	236,433	236,433	236,433
Single Family Residential	DU	64,197	60,262	59,293	58,911
Multi-Family Residential	DU	27,924	30,724	32,055	32,441
Mobile Home Residential	DU	11,419	10,140	9,811	9,811
Office	KSF	7,748	7,901	8,559	8,630
Medical Office	KSF	2,427	2,471	2,506	2,558
Hospitals	KSF	1,272	1,142	1,142	1,142
Industrial	KSF	13,631	15,628	15,729	15,729
Public/Quasi-Public	KSF	2,598	2,804	2,804	2,874
Park	Acres	540	555	555	526
Neighborhood-Serving Retail	KSF	13,012	13,268	12,177	11,764
Regional-Serving Retail	KSF	934	1,119	1,052	965
Hotels	Rooms	2,450	2,800	2,835	2,800
K-12 School	Students	34,484	31,031	31,031	31,031
University	Students	18,710	15,463	15,463	17,892
Community College	KSF	14,686	14,641	14,641	17,416
Casino (CASINO_SLT)	Slots	2,257	1,950	1,950	1,950
On Campus Student Housing	Dwelling Units	0	1,098	1,098	1,098

Source: BCAG, 2024 RTP/SCS Land Use Forecast.

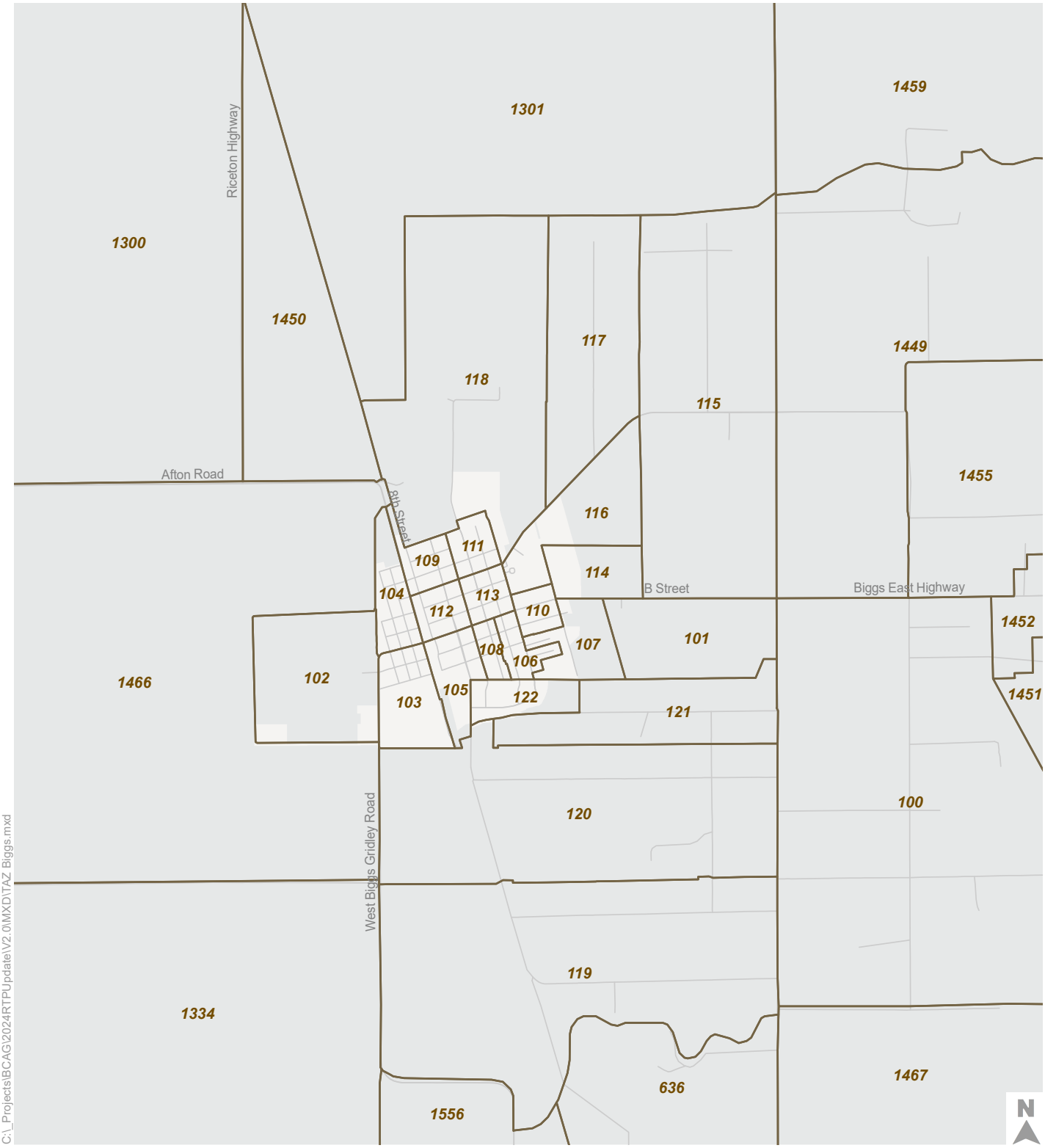
Appendix A:
TAZ Maps



Traffic Analysis Zone Boundaries

City Limits

BCAG Model V2.0 - Traffic Analysis Zone Boundaries



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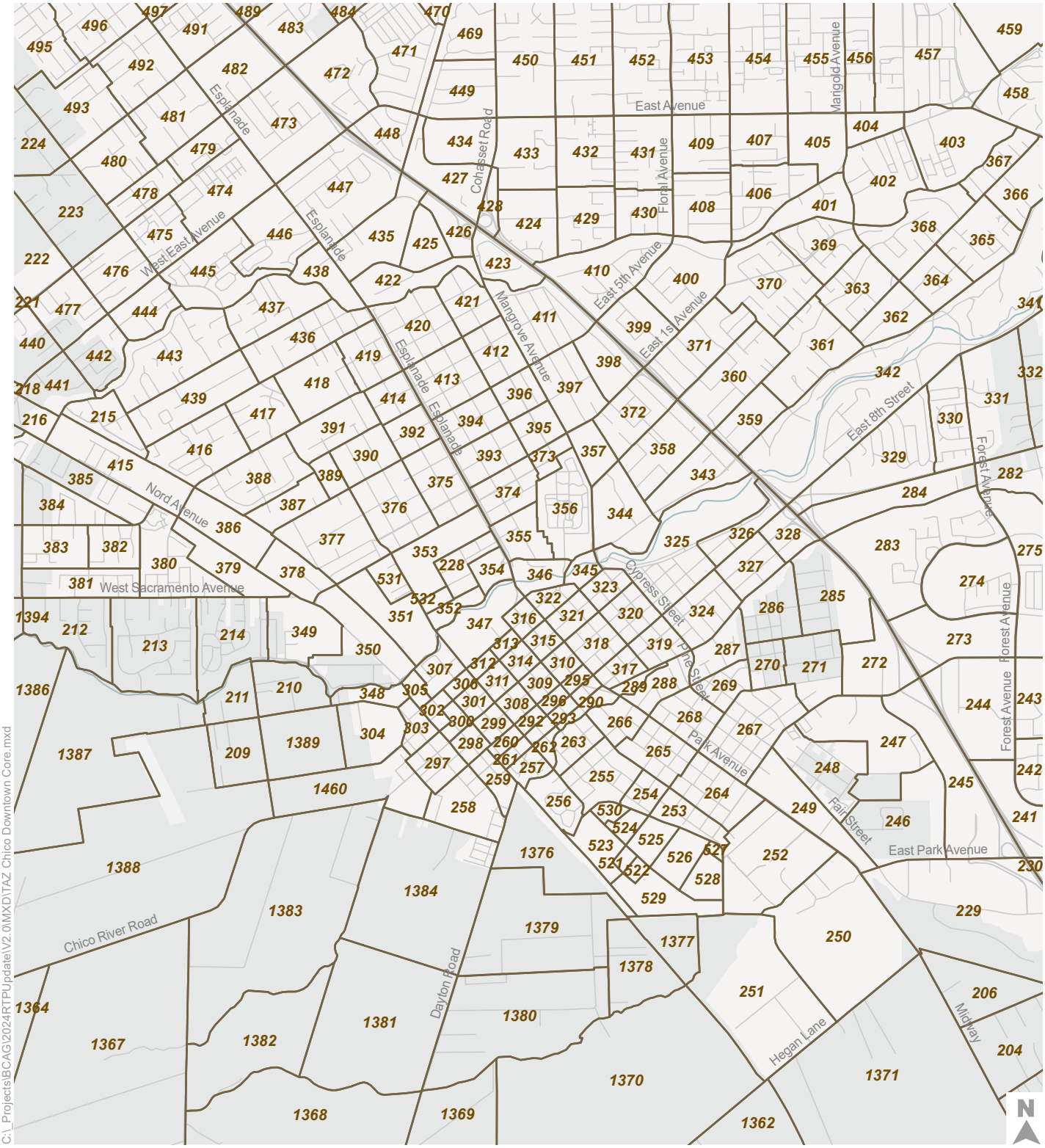
Traffic Analysis Zone Boundaries

City Limits

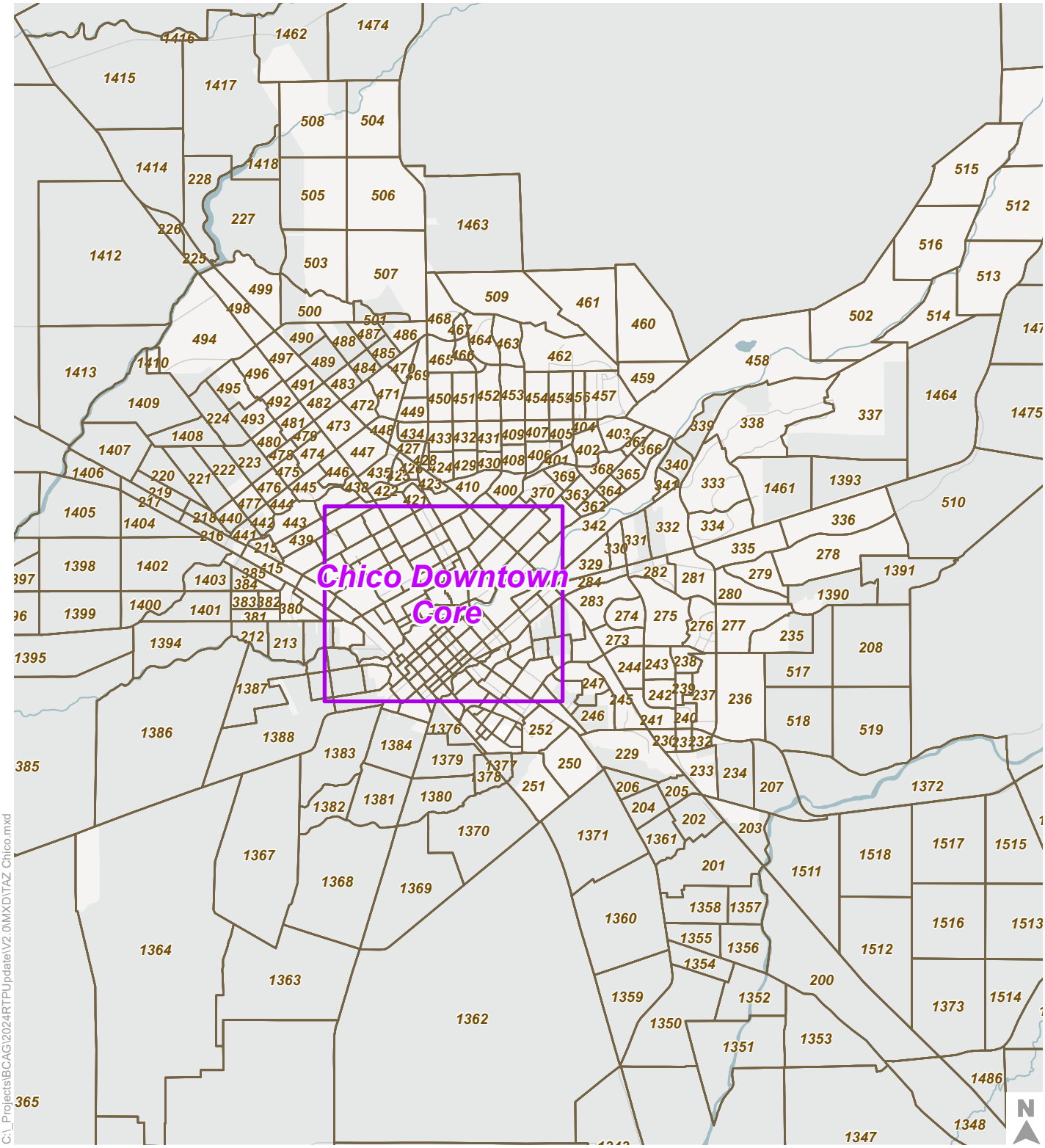
BCAG Model V2.0 - Biggs TAZ Boundaries



Traffic Analysis Zone Boundaries

City Limits

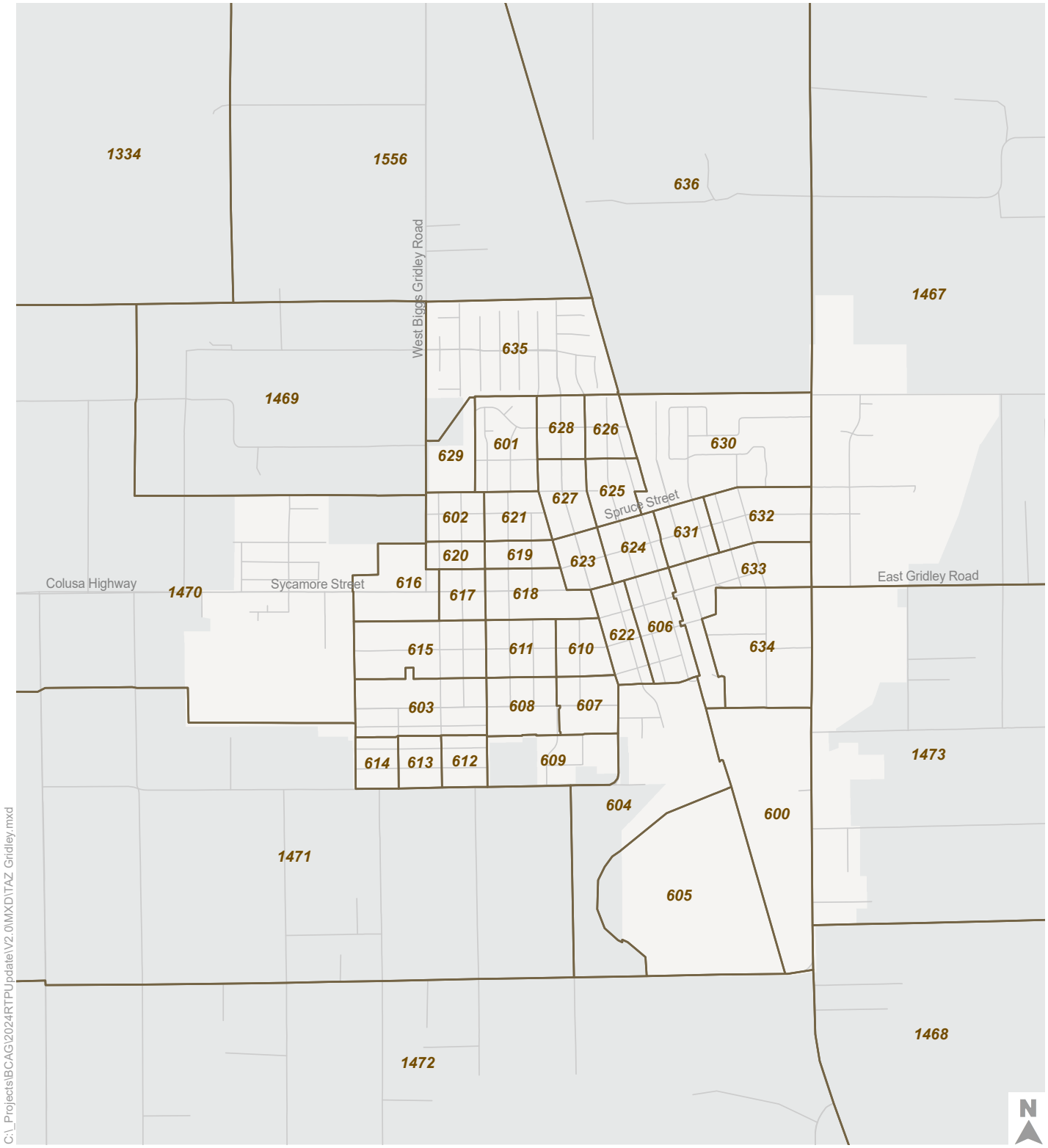
BCAG Model V2.0 - Chico Downtown Core TAZ Boundaries



Traffic Analysis Zone Boundaries

City Limits

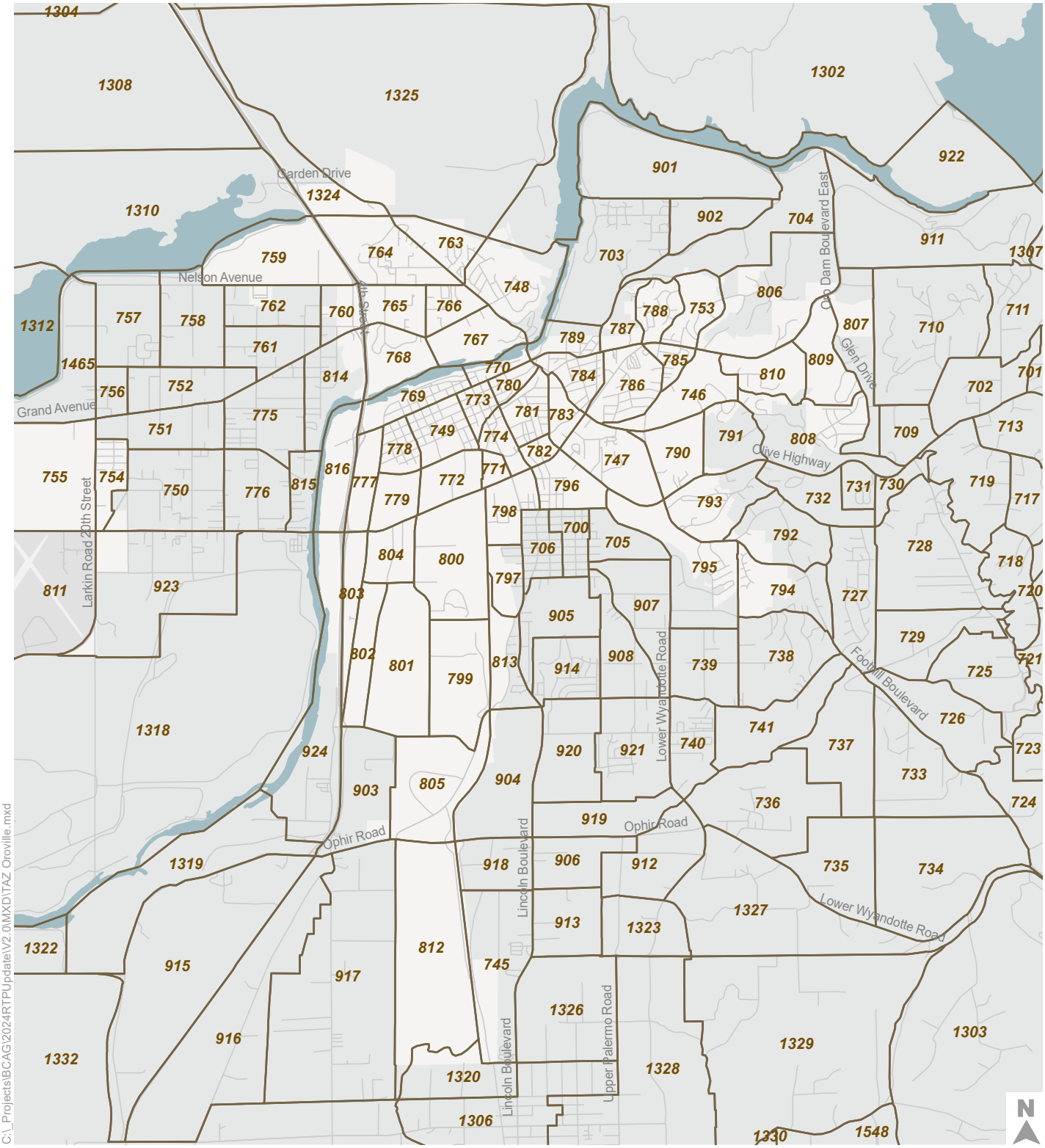
BCAG Model V2.0 - Chico TAZ Boundaries



Traffic Analysis Zone Boundaries

City Limits

BCAG Model V2.0 - Gridley TAZ Boundaries



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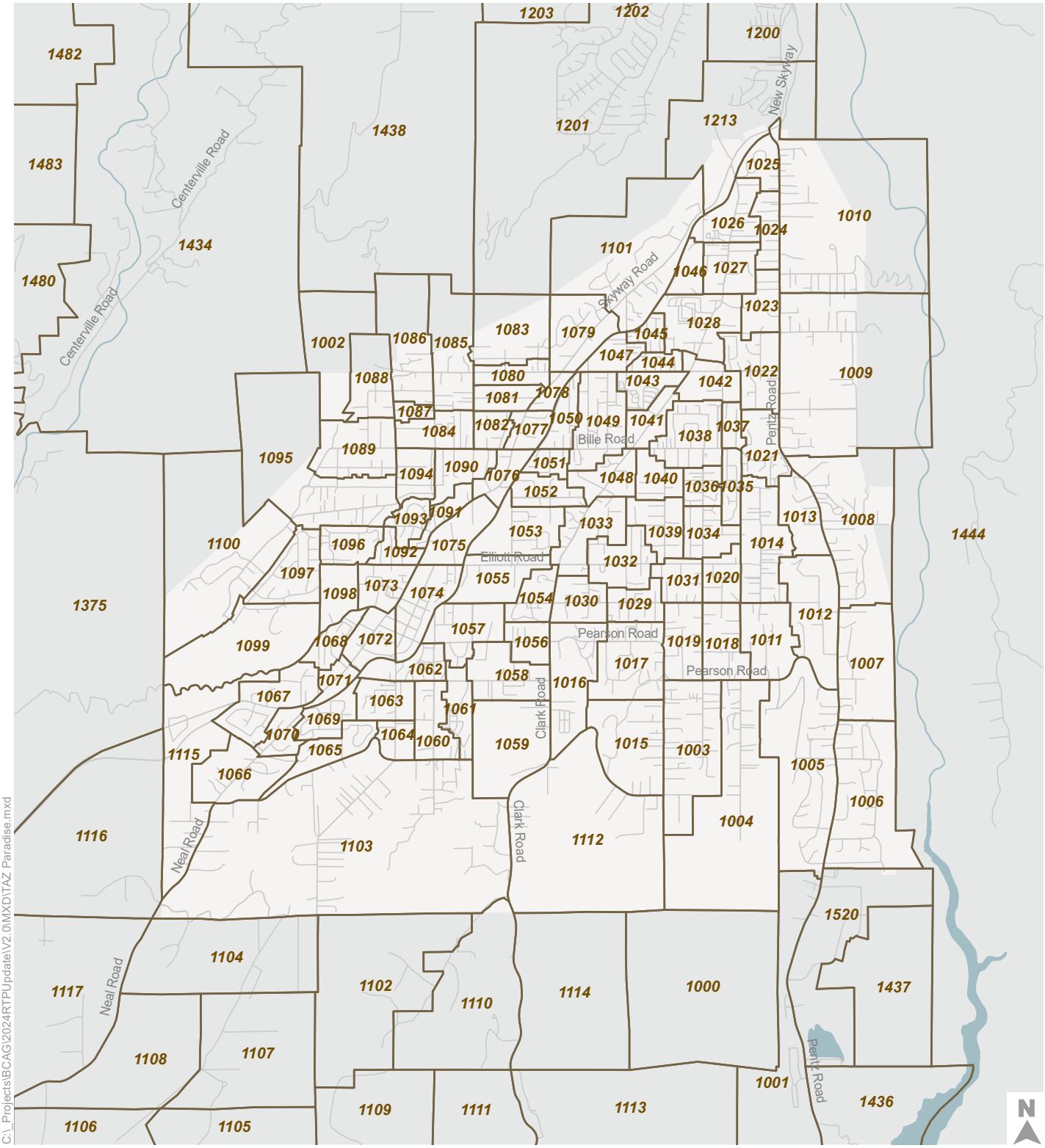
Traffic Analysis Zone Boundaries

City Limits

BCAG Model V2.0 - Oroville TAZ Boundaries



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Traffic Analysis Zone Boundaries

City Limits

BCAG Model V2.0 - Paradise TAZ Boundaries

Appendix B:
California Household Travel Survey Data

This appendix contains metadata and data from the CHTS that were used for overall comparisons and validation for the 2018 BCAG TDF Model.

CHTS Detailed Summaries

The tables below contain the metadata for the results of the CHTS processing. The raw summary files are included with the model files and the data used for validation are summarized in the 2018 BCAG Model Validation spreadsheet. Since the model was validated to the county level data, the warning levels are provided for the potential use at a more detailed level.

Table 1: Daily Trip Mode Shares – Metadata

Label	Field Type	Description	Notes
Geography Name	Text	Name of geographic unit whose residents are being summarized	
Geography Type	Text	Type of geography: state, region, county, or city	
Total Trips (all purposes)	Numeric	Total number of person-trips in this geography.	
Sample Trips (all purposes)	Numeric	Number of person-trips surveyed by CHTS in this geography	
Warning Level (all purposes)	Numeric (0, 1, 2)	Warning level 0: All-purpose mode shares can be used with confidence. Warning level 1: All-purpose mode shares should be used with caution and cross-referenced with other sources. Warning level 2: All-purpose mode shares should not be used alone, but can be aggregated with other geographies of the same type to achieve a larger sample size.	Warning level 0: Over 100 trips; warning level 1: 51-100 trips; warning level 2: 50 or fewer trips.
Drive-alone mode share (all trips)	Percentage	Percentage of drive-alone trips among all trips within the geography.	
Shared Ride 2 mode share (all trips)	Percentage	Percentage of 2-person carpool trips among all trips within the geography.	
Shared Ride 3+ mode share (all trips)	Percentage	Percentage of 3-or-more person carpool trips among all trips within the geography.	
Transit mode share (all trips)	Percentage	Percentage of transit trips among all trips within the geography.	
Bike mode share (all trips)	Percentage	Percentage of bike trips among all trips within the geography.	
Walk mode share (all trips)	Percentage	Percentage of walk trips among all trips within the geography.	
Other mode share (all trips)	Percentage	Percentage of other mode trips among all trips within the geography.	

Table 1: Daily Trip Mode Shares – Metadata			
Label	**Field Type**	**Description**	**Notes**
Total Trips (HBO trips)	Numeric	Total number of HBO person-trips in this geography.	
Sample Trips (HBO trips)	Numeric	Number of HBO person-trips surveyed by CHTS in this geography	
Warning Level (HBO trips)	Numeric (0, 1, 2)	Warning level 0: HBO mode shares can be used with confidence. Warning level 1: HBO mode shares should be used with caution and cross-referenced with other sources. Warning level 2: HBO mode shares should not be used alone, but can be aggregated with other geographies of the same type to achieve a larger sample size.	Warning level 0: Over 100 trips; warning level 1: 51-100 trips; warning level 2: 50 or fewer trips.
Drive-alone mode share (HBO)	Percentage	Percentage of drive-alone trips among HBO trips within the geography.	
Shared Ride 2 mode share (HBO)	Percentage	Percentage of 2-person carpool trips among HBO trips within the geography.	
Shared Ride 3+ mode share (HBO)	Percentage	Percentage of 3-or-more person carpool trips among HBO trips within the geography.	
Transit mode share (HBO)	Percentage	Percentage of transit trips among HBO trips within the geography.	
Bike mode share (HBO)	Percentage	Percentage of bike trips among HBO trips within the geography.	
Walk mode share (HBO)	Percentage	Percentage of walk trips among HBO trips within the geography.	
Other mode share (HBO)	Percentage	Percentage of other mode trips among HBO trips within the geography.	Other modes include school bus, taxi, private shuttles, etc.
Total Trips (HBW trips)	Numeric	Total number of HBW person-trips in this geography.	
Sample Trips (HBW trips)	Numeric	Number of HBW person-trips surveyed by CHTS in this geography	
Warning Level (HBW trips)	Numeric (0, 1, 2)	Warning level 0: HBW mode shares can be used with confidence. Warning level 1: HBW mode shares should be used with caution and cross-referenced with other sources. Warning level 2: HBW mode shares should not be used alone, but can be aggregated with other geographies of the same type to achieve a larger sample size.	Warning level 0: Over 100 trips; warning level 1: 51-100 trips; warning level 2: 50 or fewer trips.
Drive-alone mode share (HBW)	Percentage	Percentage of drive-alone trips among HBW trips within the geography.	
Shared Ride 2 mode share (HBW)	Percentage	Percentage of 2-person carpool trips among HBW trips within the geography.	

Table 1: Daily Trip Mode Shares – Metadata			
Label	**Field Type**	**Description**	**Notes**
Shared Ride 3+ mode share (HBW)	Percentage	Percentage of 3-or-more person carpool trips among HBW trips within the geography.	
Transit mode share (HBW)	Percentage	Percentage of transit trips among HBW trips within the geography.	
Bike mode share (HBW)	Percentage	Percentage of bike trips among HBW trips within the geography.	
Walk mode share (HBW)	Percentage	Percentage of walk trips among HBW trips within the geography.	
Other mode share (HBW)	Percentage	Percentage of other mode trips among HBW trips within the geography.	Other modes include school bus, taxi, private shuttles, etc.
Total Trips (NHB trips)	Numeric	Total number of NHB person-trips in this geography.	
Sample Trips (NHB trips)	Numeric	Number of NHB person-trips surveyed by CHTS in this geography	
Warning Level (NHB trips)	Numeric (0, 1, 2)	Warning level 0: HBO mode shares can be used with confidence. Warning level 1: HBO mode shares should be used with caution and cross-referenced with other sources. Warning level 2: HBO mode shares should not be used alone, but can be aggregated with other geographies of the same type to achieve a larger sample size.	Warning level 0: Over 100 trips; warning level 1: 51-100 trips; warning level 2: 50 or fewer trips.
Drive-alone mode share (NHB)	Percentage	Percentage of drive-alone trips among NHB trips within the geography.	
Shared Ride 2 mode share (NHB)	Percentage	Percentage of 2-person carpool trips among NHB trips within the geography.	
Shared Ride 3+ mode share (NHB)	Percentage	Percentage of 3-or-more person carpool trips among NHB trips within the geography.	
Transit mode share (NHB)	Percentage	Percentage of transit trips among NHB trips within the geography.	
Bike mode share (NHB)	Percentage	Percentage of bike trips among NHB trips within the geography.	
Walk mode share (NHB)	Percentage	Percentage of walk trips among NHB trips within the geography.	
Other mode share (NHB)	Percentage	Percentage of other mode trips among NHB trips within the geography.	Other modes include school bus, taxi, private shuttles, etc.

Table 2: Daily Vehicle Trip Metrics per Household – Metadata			
Label	**Field Type**	**Description**	**Notes**
Geography Name	Text	Name of geographic unit whose residents are being summarized	
Geography Type	Text	Type of geography: state, region, county, or city	
Total Households	Numeric	Total number of households in this geography	CHTS is weighted at county level to match household totals from 2012 5-year ACS. For city geography, this total reflects the CHTS city households, weighted and expanded.
Sample Households	Numeric	Number of households surveyed by CHTS in this geography	
Warning Level	Numeric (0, 1, 2)	Warning level 0: Household metrics can be used with confidence. Warning level 1: Household metrics should be used with caution and cross-referenced with other sources. Warning level 2: Household metrics should not be used alone, but can be aggregated with other geographies of the same type to achieve a larger sample size.	Warning level 0: Over 100 households; warning level 1: 51-100 households; warning level 2: 50 or fewer households.
VMT per Household, total	Numeric	Vehicle Miles Travelled generated per household, all trip purposes.	
VMT per Household, HBO	Numeric	Vehicle Miles Travelled generated per household, Home-Based Other trips only.	
VMT per Household, HBW	Numeric	Vehicle Miles Travelled generated per household, Home-Based Work trips only.	
VMT per Household, NHB	Numeric	Vehicle Miles Travelled generated per household, Non-Home-Based trips only.	
Vehicle Trips per Household, Total	Numeric	Vehicle Trips generated per household, all trip purposes.	
Vehicle Trips per Household, Total	Numeric	Vehicle Trips generated per household, Home-Based Other trips only.	
Vehicle Trips per Household, Total	Numeric	Vehicle Trips generated per household, Home-Based Work trips only.	
Vehicle Trips per Household, Total	Numeric	Vehicle Trips generated per household, Non-Home-Based trips only.	
Vehicle Trip Length, Total	Numeric	Average Vehicle Trip distance, all trip purposes.	Calculation: Total VMT per HH / Total VT per HH
Vehicle Trip Length, HBO	Numeric	Average Vehicle Trip distance, Home-Based Other trips only.	Calculation: HBO VMT per HH / HBO VT per HH
Vehicle Trip Length, HBW	Numeric	Average Vehicle Trip distance, Home-Based Work trips only.	Calculation: HBW VMT per HH / HBW VT per HH
Vehicle Trip Length, NHB	Numeric	Average Vehicle Trip distance, Non-Home-Based trips only.	Calculation: NHB VMT per HH / NHB VT per HH

Table 3: Daily Vehicle Trip Metrics per Capita – Metadata			
Label	**Field Type**	**Description**	**Notes**
Geography Name	Text	Name of geographic unit whose residents are being summarized	
Geography Type	Text	Type of geography: state, region, county, or city	
Total Persons	Numeric	Total number of persons living in capitas in this geography	Persons not living in capitas (e.g., persons living in group quarters such as university dorms) are not included in this total. CHTS is weighted by capitas at county level to match capita totals from 2012 5-year ACS. For city geography, this total reflects the CHTS city persons, weighted and expanded.
Sample Persons	Numeric	Number of persons in CHTS-surveyed capitas in this geography	
Warning Level	Numeric (0, 1, 2)	Warning level 0: Capita metrics can be used with confidence. Warning level 1: Capita metrics should be used with caution and cross-referenced with other sources. Warning level 2: Capita metrics should not be used alone, but can be aggregated with other geographies of the same type to achieve a larger sample size.	Warning level 0: Over 100 persons; warning level 1: 51-100 persons; warning level 2: 50 or fewer persons.
VMT per Capita, total	Numeric	Vehicle Miles Travelled generated per capita, all trip purposes.	
VMT per Capita, HBO	Numeric	Vehicle Miles Travelled generated per capita, Home-Based Other trips only.	
VMT per Capita, HBW	Numeric	Vehicle Miles Travelled generated per capita, Home-Based Work trips only.	
VMT per Capita, NHB	Numeric	Vehicle Miles Travelled generated per capita, Non-Home-Based trips only.	
Vehicle Trips per Capita, Total	Numeric	Vehicle Trips generated per capita, all trip purposes.	
Vehicle Trips per Capita, Total	Numeric	Vehicle Trips generated per capita, Home-Based Other trips only.	
Vehicle Trips per Capita, Total	Numeric	Vehicle Trips generated per capita, Home-Based Work trips only.	
Vehicle Trips per Capita, Total	Numeric	Vehicle Trips generated per capita, Non-Home-Based trips only.	
Vehicle Trip Length, Total	Numeric	Average Vehicle Trip distance, all trip purposes.	Calculation: Total VMT per capita / Total VT per capita
Vehicle Trip Length, HBO	Numeric	Average Vehicle Trip distance, Home-Based Other trips only.	Calculation: HBO VMT per capita / HBO VT per capita

Table 3: Daily Vehicle Trip Metrics per Capita – Metadata			
Label	**Field Type**	**Description**	**Notes**
Vehicle Trip Length, HBW	Numeric	Average Vehicle Trip distance, Home-Based Work trips only.	Calculation: HBW VMT per capita / HBW VT per capita
Vehicle Trip Length, NHB	Numeric	Average Vehicle Trip distance, Non-Home-Based trips only.	Calculation: NHB VMT per capita / NHB VT per capita

Table 4: Daily Person Trip Metrics per Household – Metadata			
Label	**Field Type**	**Description**	**Notes**
Geography Name	Text	Name of geographic unit whose residents are being summarized	
Geography Type	Text	Type of geography: state, region, county, or city	
Total Households	Numeric	Total number of households in this geography	CHTS is weighted at county level to match household totals from 2012 5-year ACS. For city geography, this total reflects the CHTS city households, weighted and expanded.
Sample Households	Numeric	Number of households surveyed by CHTS in this geography	
Warning Level	Numeric (0, 1, 2)	Warning level 0: Household metrics can be used with confidence. Warning level 1: Household metrics should be used with caution and cross-referenced with other sources. Warning level 2: Household metrics should not be used alone, but can be aggregated with other geographies of the same type to achieve a larger sample size.	Warning level 0: Over 100 households; warning level 1: 51-100 households; warning level 2: 50 or fewer households.
PMT per Household, total	Numeric	Person Miles Travelled generated per household, all trip purposes.	
PMT per Household, HBO	Numeric	Person Miles Travelled generated per household, Home-Based Other trips only.	
PMT per Household, HBW	Numeric	Person Miles Travelled generated per household, Home-Based Work trips only.	
PMT per Household, NHB	Numeric	Person Miles Travelled generated per household, Non-Home-Based trips only.	
Person Trips per Household, Total	Numeric	Person Trips generated per household, all trip purposes.	
Person Trips per Household, Total	Numeric	Person Trips generated per household, Home-Based Other trips only.	
Person Trips per Household, Total	Numeric	Person Trips generated per household, Home-Based Work trips only.	
Person Trips per Household, Total	Numeric	Person Trips generated per household, Non-Home-Based trips only.	
Person Trip Length, Total	Numeric	Average Person Trip distance, all trip purposes.	Calculation: Total PMT per HH / Total PT per HH
Person Trip Length, HBO	Numeric	Average Person Trip distance, Home-Based Other trips only.	Calculation: HBO PMT per HH / HBO PT per HH
Person Trip Length, HBW	Numeric	Average Person Trip distance, Home-Based Work trips only.	Calculation: HBW PMT per HH / HBW PT per HH
Person Trip Length, NHB	Numeric	Average Person Trip distance, Non-Home-Based trips only.	Calculation: NHB PMT per HH / NHB PT per HH

Geography Name			California	SACOG	Butte
Geography Type			state	region	county
All Trips	Trip Data	Total Trips	121,791,338	7,591,534	704,387
		Sample Trips	248,398	12,657	2,055
		Warning Level	0	0	0
	Mode Share, all trips	Drive Alone	40.1%	42.9%	42.9%
		Shared Ride 2	22.6%	23.3%	27.8%
		Shared Ride 3+	20.1%	20.9%	18.1%
		Transit	3.6%	2.0%	3.1%
		Bike	1.6%	2.8%	2.1%
		Walk	10.9%	7.1%	5.6%
		Other	1.0%	1.0%	0.3%
HBO Trips	Trip Data	Total Trips	17,630,532	1,055,514	92,052
		Sample Trips	39,865	1,974	311
		Warning Level	0	0	0
	Mode Share, HBO trips	Drive Alone	30.2%	33.1%	31.5%
		Shared Ride 2	25.4%	25.8%	29.9%
		Shared Ride 3+	24.6%	26.7%	23.8%
		Transit	3.3%	1.2%	4.7%
		Bike	1.8%	3.6%	3.0%
		Walk	13.3%	8.2%	6.7%
		Other	1.4%	1.5%	0.3%
HBW Trips	HBW Trips	Total Trips	68,518,400	4,393,210	392,226
		Sample Trips	135,701	6,892	1,066
		Warning Level	0	0	0
	Mode Share, HBW trips	Drive Alone	76.1%	76.8%	79.7%
		Shared Ride 2	7.9%	6.0%	15.5%
		Shared Ride 3+	2.4%	3.9%	0.8%
		Transit	8.1%	7.6%	2.2%
		Bike	1.9%	3.0%	1.7%
		Walk	3.4%	2.1%	0.0%
		Other	0.2%	0.6%	0.0%
NHB Trips	NHB Trips	Total Trips	35,642,406	2,142,810	220,108
		Sample Trips	72,832	3,791	678
		Warning Level	0	0	0
	Mode Share, NHB trips	Drive Alone	41.5%	46.3%	47.6%
		Shared Ride 2	24.5%	26.6%	29.2%
		Shared Ride 3+	20.4%	17.6%	15.3%
		Transit	0.8%	1.1%	0.7%
		Bike	2.1%	1.1%	0.7%
		Walk	10.1%	7.1%	6.1%
		Other	0.6%	0.2%	0.3%

Geography Name			California	SACOG	Butte
Geography Type			state	region	county
Household Metrics		Total Households	12,465,947	816,939	85,074
		Sample Households	30,215	1,438	222
		Warning Level	0	0	0
Daily Vehicle Trip Metrics	MT per Household	Total	41.6	42.9	39.3
		HBO	15.4	18.1	15.8
		HBW	14.1	12.4	8.7
		NHB	11.2	11.6	14.3
	e Trips per Hou	Total	5.3	5.3	4.8
		HBO	2.5	2.6	2.2
		HBW	1.2	1.1	0.9
		NHB	1.6	1.6	1.7
	ge Vehicle Trip I	Total	7.9	8.1	8.3
		HBO	6.1	6.9	7.1
		HBW	12.2	11.6	9.4
		NHB	6.9	7.2	8.6

Geography Name			California	SACOG	Butte
Geography Type			state	region	county
Capita Metrics		Total Persons	34,153,524	2,120,050	195,774
		Sample Persons	77,587	3,648	534
		Warning Level	0	0	0
Daily Vehicle Trip Metrics	VMT per Capita	Total	15.1	16.6	17.2
		HBO	5.8	7.2	7.0
		HBW	5.1	4.7	3.8
		NHB	4.2	4.6	6.4
	Vehicle Trips per Capita	Total	2.0	2.1	2.1
		HBO	1.0	1.1	1.0
		HBW	0.4	0.4	0.4
		NHB	0.6	0.6	0.7
	Average Vehicle Trip Length	Total	7.6	7.9	8.1
		HBO	6.0	6.8	7.1
		HBW	12.1	11.5	9.3
		NHB	6.8	7.2	8.6

Geography Name			California	SACOG	Butte
Geography Type			state	region	county
Household Metrics		Total Households	12,465,947	816,939	85,074
		Sample Households	30,215	1,438	222
		Warning Level	0	0	0
Daily Person Trip Metrics	PMT per Household	Total	63.0	69.3	58.7
		HBO	28.0	36.6	26.8
		HBW	17.0	14.9	10.0
		NHB	16.7	16.4	21.3
	Person Trips per Household	Total	8.9	8.5	7.5
		HBO	4.9	4.9	4.2
		HBW	1.4	1.3	1.0
		NHB	2.6	2.4	2.4
	Average Person Trip Length	Total	7.1	8.1	7.8
		HBO	5.7	7.5	6.4
		HBW	11.8	11.4	9.7
		NHB	6.4	6.9	8.8

PersonTripCapita

Geography Name			California	SACOG	Butte
Geography Type			state	region	county
Capita Metrics		Total Persons	34,153,524	2,120,050	195,774
		Sample Persons	77,587	3,648	534
		Warning Level	0	0	0
Daily Person Trip Metrics	PMT per Capita	Total	22.4	26.2	25.1
		HBO	10.2	14.1	11.7
		HBW	6.1	5.7	4.4
		NHB	6.2	6.4	9.2
	Person Trips per Capita	Total	3.3	3.3	3.3
		HBO	1.8	1.9	1.8
		HBW	0.5	0.5	0.5
		NHB	1.0	0.9	1.1
	Average Person Trip Length	Total	6.8	7.9	7.7
		HBO	5.6	7.4	6.4
		HBW	11.8	11.4	9.7
		NHB	6.4	6.8	8.7

Appendix C:
Planned and Programmed Project List

Capacity Projects 2022-2035 (2024 RTP/SCS) - Scenario #4

Jurisdiction	TITLE	PROJECT DESCRIPTION	New Lane Miles	Roadway Classification	Speed	2024 RTP Analysis Year					Modeled In 2020 RTP/SCS
						2022 - Model Base Year	2024 RTP Base Year	2030 Mile-stone Year	2035 GHG Year	2045 RTP Horizon	
Butte County	Central House Rd Bridge Widening (at Wyman Ravine)	Widen Central House Rd Bridge from 1 to 2 lanes at Wyman Ravine	0.04	Local	35			x	x	x	Yes
Butte County	SR 70 Widening (Lower Honcut Rd to Butte County Line)	Widen SR 70 from 2 to 4 lanes from Lower Honcut Rd to Butte County Line.	2.02	Principal Arterial	65		x	x	x	x	Yes
Chico	Guynn Rd Bridge Widening (at Lindo Channel)	Widen Guynn Rd Bridge from 1 to 2 lanes at Lindo Channel	0.03	Local	25			x	x	x	Yes
Chico	Cohasset Rd Widening (Airport Blvd to Eaton Rd)	Widen Cohassett Rd from 2 to 4 lanes from Airport Blvd to Eaton Rd	3.61	Minor Arterial	55		x	x	x	x	Yes
Chico	Bruce Rd Widening (Skyway to SR 32)	From Skyway to SR 32, widen Roadway (Bridge included as separate project)	4.09	Minor Arterial	45			x	x	x	Yes
Chico	Commerce Ct Extension (Ivy St to Park Ave)	Construct 2 lane roadway connecting Ivy St to Park Ave	0.06	Local	25			x	x	x	Yes
Chico	E. 20th St Widening (Forest Ave to Bruce Rd)	Widen E. 20th St from 2 to 4 lanes from Forest Ave to Bruce Rd	0.98	Minor Arterial	40					x	Yes
Chico	Eaton Rd Widening (Hicks Ln to Cohasset Rd)	Widen Eaton Rd from 2 to 4 lanes from Hicks Ln to Cohasset Rd	3.05	Minor Arterial	45					x	Yes
Chico	Eaton Rd Widening (Ceanothus Ave to Marogold Ave)	Widen Eaton Rd from 3 to 4 lanes from Ceanothus Ave to Marigold Ave	0.25	Minor Arterial	45					x	Yes
Chico	Eaton Rd Widening (Cohasset to Lassen Ave)	Widen Eaton Rd from 2 to 4 lanes from Cohasset Rd to Lassen Ave	1.26	Minor Arterial	40					x	Yes
Chico	Eaton Rd Widening (Marigold Ave to Lance Terr)	Widen Eaton Rd from 3 to 4 lanes from Marigold Ave to Lance Terr	0.52	Minor Arterial	45					x	Yes
Chico	Esplanade Widening (Eaton Rd to Nord Hwy)	Widen Esplanade from 2 to 4 lanes from Eaton Rd to Nord Hwy	1.34	Major Collector	35			x	x	x	Yes
Chico	Yosemite Dr extension (Native Oak Dr to Humboldt Rd)	Construct 2 lane roadway connecting Native Oak Dr to Humboldt Rd	0.31	Major Collector	35			x	x	x	Yes
Chico	Notre Dame Extension (@ Little Chico Creek)	Construct 2 lane bridge @ Little Chico Creek	0.16	Major Collector	25			x	x	x	Yes
Chico	Midway Widening (Hegan Ln to E. Park Ave)	Widen Midway from 2 to 4 lanes from Hegan Ln to E. Park Ave	0.86	Minor Arterial	45					x	Yes
Chico	SR 32 Widening (El Monte Ave to Bruce Rd)	Widen SR 32 from 2 to 4 lanes from El Monte Ave to Bruce Rd	0.89	Principal Arterial	55					x	Yes
Chico	SR 32 Widening (Bruce Rd to Yosemite Dr)	Widen SR 32 from 2 to 4 lanes from Bruce Rd to Yosemite Dr	1.32	Minor Arterial	55					x	Yes
Chico	Eaton Rd Widening (@ SR 99)	Widen Eaton Rd from 2 to 4 lanes from Esplanade to SR 99	0.33	Minor Arterial	35				x	x	Yes
Chico	SR 99 on-ramp at Cohasset Rd	Construct Southbound direct on-ramp	0.12	Principal Arterial	65					x	Yes
Chico	MLK Blvd Widening (E. Park Ave to 20th St)	Widen MLK Blvd from 2 to 4 lanes from E. Park Ave to 20th St	1.62	Major Collector	35					x	Yes
Chico	Fair St Lane Reduction (E. Park Ave to E 20th St)	Reduce vehicle travel lanes from 4 to 2 from E. Park Ave to 20th St	-1.38	Principal Arterial	35			x	x	x	No
Paradise	Roe Rd Extension (Pentz Rd to S. Libby Rd) - Phase 1	Construct 2 lane roadway for extension of Roe Rd from Pentz Rd to South Libby Rd	2.28	Major Collector	25			x	x	x	Yes
Paradise	Roe Rd Extension (S. Libby Rd to SR 191) - Phase 2	Construct 2 lane roadway for extension of Roe Rd from South Libby Rd to SR 191	0.79	Major Collector	25			x	x	x	Yes
Paradise	Roe Rd Extension (SR 191 to Scottwood Rd) - Phase 3	Construct 2 lane roadway for extension of Roe Rd from SR 191 to Scottwood Rd	1.02	Major Collector	25				x	x	No
Paradise	Roe Rd Extension (Neal Rd to Skyway) - Phase 4	Construct 2 lane roadway for extension of Roe Rd from Neal Rd to Skyway	0.86	Major Collector	25					x	No

Bike Network Updates 2022-2045 (2024 RTP/SCS) - Scenario #4

Jurisdiction	TITLE	PROJECT DESCRIPTION	Facility Miles	Facility Classification	2024 RTP Analysis Year					In 2020 RTP/SCS
					2022 - Model Base Year	2024 RTP Base Year	2030 Mile-stone Year	2035 GHG Year	2045 RTP Horizon	
Biggs	SR2S 2nd St Class II	Class II along 2nd & E Streets.	0.32	Class II			x	x	x	Yes
Butte County	Autry Lane & Monte Vista Safe Routes to Schools Gap Closure Project	Curb, gutter, sidewalk, and crossing enhancements along Autrey Ln. and Monte Vista Ave. on Autry from Las Plumas to Monte Vista and along Monte Vista from Autry Ln to Lincoln Blvd.	3.15	Class II			x	x	x	Yes
Butte County	State Route 162 Class II	Class II along SR 162 from Monument Hill Rd to Wildlife Area Rd	4.38	Class II				x	x	No
Butte County	Noth Chico Specific Plan Area Class I & II	Class I bike facilities consistent with North Chico Specific Plan	2.73	Class I				x	x	No
		Class II bike facilities consistent with North Chico Specific Plan	1.55	Class II				x	x	No
Butte County	Rio D' Oro Specific Plan Area Class I & II - Phase 1	Class I bike facilities consistent with Rio D' Oro Specific Plan - Phase 1	1.03	Class I				x	x	No
		Class II bike facilities consistent with Rio D' Oro Specific Plan - Phase 1	0.38	Class II				x	x	No
Chico	SR 99 Corridor Bikeway Phase 5 - 20th Street Crossing	SR 99 Corridor Bikeway Project Phase 5 completes the gap adjacent to SR 99 from Chico Mall across 20th Street to the south end of Business Lane. Scope of project is develop a new bicycle and pedestrian crossing (bridge) over 20th Street in Chico.□	0.49	Class IV			x	x	x	Yes
Chico	Whittmeier Dr Class II (Bikeway 99 connector)	From SR99 Phase 4 end to Forest Ave and Talbert. Class 2 bike facility (0.18 miles)	0.19	Class II			x	x	x	Yes
Chico	Humboldt Rd Class 1	From Morning Rose Way to Bruce Rd. Class 1 bike facility (0.51 miles)	0.56	Class I			x	x	x	No
Chico	Esplanade Class 1	From Eaton Rd to Nord Hwy. Class 1 bike facility (0.67 miles)	0.67	Class I			x	x	x	No
Chico	Esplanade Class 2	From W 11th Ave to East Ave. Class 2 bike facility (1.09 miles)	1.20	Class II			x	x	x	Yes
Chico	Bruce Rd Class 1	From HWY 32 to Remington Dr. Class 1 bike facility (0.65 miles)	0.99	Class I			x	x	x	No
Chico	Lower Bidwell Park - Downtown Chico Connection	Class II buffered bike lanes along E 4th St from Main St to Cypress St and along E 3rd St from Main St to Pine St.	0.73	Class II			x	x	x	No
Chico	Chico Station - Downtown Chico Connection	Class II buffered bike lanes along W 4th St from Orange St to Main St and along W 3rd St from Walnut St to Main St.	1.18	Class II			x	x	x	No
Chico	Vallombrosa Avenue Bikeway	Class IV bikeway along Vallombrosa Ave from Manzanita Ave to Camellia Way.	2.85	Class IV			x	x	x	No
Chico	Chico River Road to Downtown Chico Connection	Class II bike lane along W 5th St from Chico River Rd to Broadway St	0.94	Class II			x	x	x	No
Chico	Lindo Channel Bikepath	Class I shared-use path along Lindo Channel from Nord Ave to SR99.	2.65	Class I			x	x	x	No
Chico	Little Chico Creek Bikepath	Class I shared-use path along Little Chico Creek from Pomona Ave to SR99.	2.12	Class I			x	x	x	No
Chico	Vallombrosa - Manzanita Connection	Class I shared-use path along SR99 from Vallombrosa Ave to Manzanita Ave.	1.11	Class I			x	x	x	No
Chico	Mangrove Avenue Bike Improvements	Class II buffered bike lane along Mangrove Ave from Pine St/Cypress St to Cohasset Rd.	1.48	Class II			x	x	x	No
Chico	East 1st Avenue/Longfellow Avenue Bike Improvements	Class II buffered bike lane on East 1st/Longfellow Ave from Esplanade to Manzanita Ave.	1.60	Class II			x	x	x	No
Chico	Downtown Chico Complete Streets Project	Class IV parking-buffered bikeway along Main St from E 9th St to E 1st St	0.54	Class IV			x	x	x	No
		Class IV bikeway along Main St from E 1st St to Main St end.	0.17	Class IV			x	x	x	No
		Class II bike lanes along Broadway St from W 1st St to W 9th St.	0.52	Class II			x	x	x	No
Chico	Cohasset Road Bikeway	Class IV bikeway along Cohasset Rd from Manzanita Ct to Eaton Rd.	1.65	Class IV			x	x	x	No
Chico	Annie's Glen Bike Path Connector	Class I shared-use path at Annie's Glen bike path access point connector from south of Vallombrosa to Mangrove Ave/Annie's Glen bike path.	0.10	Class I			x	x	x	No
Chico	Nord Avenue Bikeway	Construct Class IV bikeway along Nord Ave from W Sacramento Ave to W 8th Ave	0.69	Class IV			x	x	x	No
Chico	Wall Street Bike Improvements	Class I shared-use path along Wall St from E 4th St to E 5th St.	0.06	Class I			x	x	x	No
Chico	W. Sacramento Avenue Bike Improvements	Class II buffered bike lane with green paint along W Sacramento Ave from Warner St to Esplanade.	0.42	Class II			x	x	x	No
Chico	Eaton Rd Widening - Class IV bike path	Class IV bike path along Eatn Rd from SR 99 to Cohasset Rd	1.52	Class IV					x	No
Chico	Notre Dame Boulevard Connection - Class II	Class II bike lane along Notre Dame Blvd over Little Chico Creek	0.10	Class II			x	x	x	No
Chico	Midway Class II	Class II bike lane along Midway Aver from Hegan Ln to E Park Ave	0.43	Class II			x	x	x	No
Chico	Yosemite Dr Class I	Class I bike path along Yosemite Dr from Native Oak Dr to Humboldt Rd	0.16	Class I			x	x	x	No
Chico	Little Chico Creek Bike Bridge Class I	Class I bike path at new bridge crossing Little Chico Creek near 20th St Park	0.05	Class I		x	x	x	x	Yes
Chico	Mariposa Ave Class II	Class II bike lane along Mariposa Ave from Eaton Rd to Whitewood Way	0.08	Class II		x	x	x	x	No
Chico	Mulberry, Pine, and Cypress St Class II	Class II along Mulberry, Pine, and Cypress Streets from 9th St to 20th St	0.98	Class II		x	x	x	x	No
Chico	North Cedar St Reconstruction Project	Class II along North Cedar St from W. Sacramento Ave to 4th Ave	0.34	Class II			x	x	x	No
Chico	Barber Yard Specific Plan Phase 1	Class I bike facilities consistent with Barber Yard Specific Plan - Phase 1	0.48	Class I			x	x	x	No
Chico	Barber Yard Specific Plan Phase 2	Class I bike facilities consistent with Barber Yard Specific Plan - Phase 2	1.12	Class I				x	x	No
Chico	Barber Yard Specific Plan Phase 3	Class I bike facilities consistent with Barber Yard Specific Plan - Phase 3	0.19	Class I					x	No
Chico	Valley's Edge Specific Plan Phase 1	Class I bike facilities consistent with Valley's Edge Specific Plan - Phase 1	2.73	Class I						No
		Class II bike facilities consistent with Valley's Edge Specific Plan - Phase 1	0.43	Class II						No
Chico	Valley's Edge Specific Plan Phase 2	Class I bike facilities consistent with Valley's Edge Specific Plan - Phase 2	2.25	Class I						No
Chico	Chico - Paradise Bikeway Project	Class I bike path along Skyway from Honey Run Rd to Paradise Trailway	8.78	Class I				x	x	No
Chico	Bruce Rd Class 1 (Skyway to 20th St)	Class I bike path along Bruce Rd from Skyway to 20th St	1.06	Class I			x	x	x	No
Chico	Fair St Class II (E Park Ave to 20th St)	Class II bike lanes along Fair St from E Park Ave to 20th St	0.69	Class II			x	x	x	No
Gridley	Gridley Bike & Pedestrian SR 99 Corridor Facility Project	Class I bike path along State Route 99 from Township Road to Archer Avenue.	0.97	Class I			x	x	x	Yes
Gridley	Magnolia St Class II	From Idaho St to Vermont St. New Class 2 bike facilities (0.42 miles)	0.42	Class II			x	x	x	Yes
Gridley	Gridley Rd Class II	From Jackson St to SR99. New Class 2 bike facilities (0.25 miles)	0.25	Class II				x	x	Yes

Jurisdiction	TITLE	PROJECT DESCRIPTION	Facility Miles	Facility Classification	2024 RTP Analysis Year					In 2020 RTP/SCS
					2022 - Model Base Year	2024 RTP Base Year	2030 Mile-stone Year	2035 GHG Year	2045 RTP Horizon	
Oroville	Washington Ave. Complete Streets Project	between Oroville Dam Boulevard East and the railroad bridge just past Orange Avenue. Construct new bike/ped facilities & ADA treatment	0.59	Class II			x	x	x	No
Oroville	Table Mountain Boulevard Complete Streets Project	from the Montgomery Street Roundabout to the Thermalito Power Canal. Construct new bike/ped facilities, ADA treatment, gap closures.	1.50	Class II			x	x	x	No
Oroville	SR 162 Class II	Class II along SR 162 from Feather River Bridge to Foothill Blvd	2.76	Class II			x	x	x	Yes
Oroville	City of Oroville AHSC Application (24/25)	Class II along Nelson Ave and 2nd St consistent with City of Oroville AHSC Application (24/25)	1.09	Class II			x	x	x	No
Paradise	Go Paradise: Oliver-Park Connection Project (AKA Oliver Curve Pathway Phase 1)	Oliver Road between Skyway and Bille Road, Bille Road between Oliver Road and Bille Park. Construct a grade separated, Class I, bike-ped facility along the west side of Oliver Road and north side of Bille Road within the project limits.	1.09	Class I			x	x	x	Yes
Paradise	Go Paradise: Neal Gateway ATP Project (AKA Paradise ATP Gateway Project)	Neal Road between Town Limits and Skyway (1.62 miles). Along Neal Road, construct a grade separated, Class I, bike-ped facility along the west side of Neal Road within the project limits.	1.62	Class I			x	x	x	Yes
Paradise	Pentz Rd Trailway Class I	Class I along Pentz Rd between Pearson Rd and Bille Rd and Wagstaff Rd and Skyway	3.16	Class I			x	x	x	Yes
Paradise	Roe Rd Extension Phase 1 - Class I	Class I along Roe Rd from Pentz Rd to South Libby Ln	1.33	Class I			x	x	x	No
Paradise	Roe Rd Extension Phase 2 - Class I	Class I along Roe Rd from South Libby Ln to SR 191	0.80	Class I			x	x	x	No
Paradise	Roe Rd Extension Phase 3 - Class I	Class I along Roe Rd from SR 191 to Scottwood Dr	0.76	Class I				x	x	No
Paradise	Roe Rd Extension Phase 4 - Class I	Class I along Roe Rd from Neal Rd to Skyway	0.43	Class I					x	No
Paradise	Roe Rd Extension Phase 5 - Class I	Class I along Roe Rd from Scottwood Dr to Neal Rd	1.65	Class I					x	No
Paradise	Gap Closure Complex Project and Almond St Multimodal	Class I along Almond St from Fir St to Elliott Rd	0.29	Class I		x	x	x	x	No
		Class II along portions of Almond St, Fir St, Birch St, and Black Olive Dr in downtown.	0.67	Class II		x	x	x	x	No
Paradise	Elliott Rd Class II	Class II along Elliot Rd from Skyway to Clark Rd	0.92	Class II		x	x	x	x	No
Paradise	Ponderosa Elementary SRTS - ATP	Class II along Pentz Rd from Bille Rd to Wagstaff Rd	0.60	Class II		x	x	x	x	Yes
Paradise	Go Paradise - Skyway Link Project (Skyway Connectivity)	The Skyway Link/Skyway Connectivity Project will stripe 3,165 linear feet of on-street bicycle lanes between Wagstaff Road and Bille Road.	0.61	Class II			x	x	x	No

Appendix D:
Model Scenario Reporting Tables

Modeling Data	2022	S1 (2035)	S2 (2035)	S3 (2035)	S4 (2035)	2045
Vehicle Operating Costs ($/mile)	0.214	0.189	0.189	0.189	0.189	0.183
Average Auto Trip Length (miles)	7.13	7.76	7.21	7.22	7.24	7.29
Average Auto Travel Time (minutes)	10.47	11.37	10.67	10.55	10.54	10.59
Percent Passenger Travel Mode Share						
Auto	91.7%	89.3%	89.5%	89.2%	87.6%	87.4%
SOV	48.3%	47.8%	46.3%	45.9%	45.0%	44.8%
HOV	43.4%	41.5%	43.3%	43.3%	42.7%	42.6%
All Other (transit & non-motorized)	8.3%	10.7%	10.5%	10.8%	12.4%	12.6%
Public Transit (Fixed Route Bus)	1.7%	3.9%	3.4%	3.5%	4.7%	4.8%
Non-Motorized (Bike and Walk)	6.4%	6.5%	6.8%	7.0%	7.4%	7.5%
Other (i.e. School Bus)	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%

Butte County VMT Summary

Scenario	II VMT	IX-XI VMT	XX VMT	Total VMT (w/o XX Trips)	Population	VMT / Capita
2022	3,821,174	712,221	87,355	4,533,395	197,020	23.0
S1 (2035)	4,858,924	809,531	108,357	5,668,455	251,863	22.5
S2 (2035)	4,490,299	637,055	108,247	5,127,354	236,433	21.7
S3 (2035)	4,448,439	640,957	108,247	5,089,395	236,433	21.5
S4 (2035)	4,406,984	579,761	108,255	4,986,745	236,433	21.1
2045	4,517,758	591,891	124,833	5,109,649	243,499	21.0

Butte County VMT Summary by Speed Bin

Speed Bin	2022	S1 (2035)	S2 (2035)	S3 (2035)	S4 (2035)	2045
0-5	2,625	4,022	8,723	5,552	4,597	4,585
5-10	9,105	9,594	11,927	11,188	11,106	11,092
10-15	6,637	15,314	4,247	5,373	5,512	6,472
15-20	12,523	37,200	23,066	20,586	17,223	13,032
20-25	465,792	605,524	538,648	521,415	507,905	521,642
25-30	138,768	190,784	157,763	146,038	152,083	152,428
30-35	979,212	1,166,981	1,095,469	1,075,225	1,057,176	1,073,875
35-40	151,403	249,154	210,853	176,041	167,668	168,033
40-45	675,368	869,883	763,547	732,533	726,985	763,081
45-50	111,635	144,580	150,435	126,494	123,891	146,495
50-55	377,552	595,722	493,107	533,598	520,459	531,924
55-60	143,649	200,627	143,696	168,985	181,289	185,932
60-65	1,546,482	1,687,428	1,634,120	1,674,615	1,619,106	1,655,891
65-70	0	0	0	0	0	0
70-75	0	0	0	0	0	0
>75	0	0	0	0	0	0
VMT (w/o XX Trips)	4,533,395	5,668,455	5,127,354	5,089,395	4,986,745	5,109,649
XX VMT	87,355	108,357	108,247	108,247	108,255	124,833
VMT (w/ XX Trips)	4,620,750	5,776,812	5,235,602	5,197,643	5,095,000	5,234,482
% XX VMT	1.9%	1.9%	2.1%	2.1%	2.1%	2.4%
IX-XI VMT	712,221	809,531	637,055	640,957	579,761	591,891
Population	197,020	251,863	236,433	236,433	236,433	243,499
VMT per Capita	3.6	3.2	2.7	2.7	2.5	2.4